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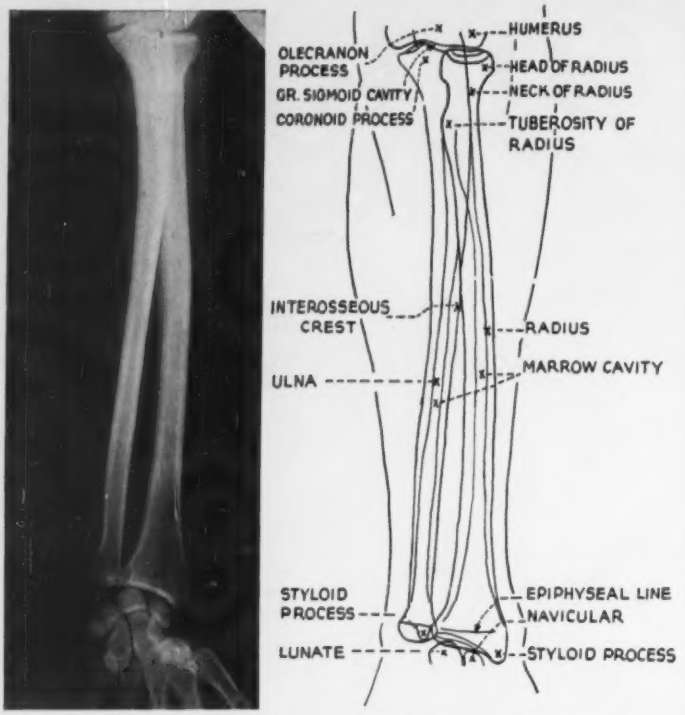

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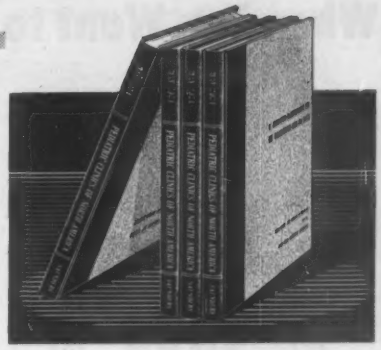

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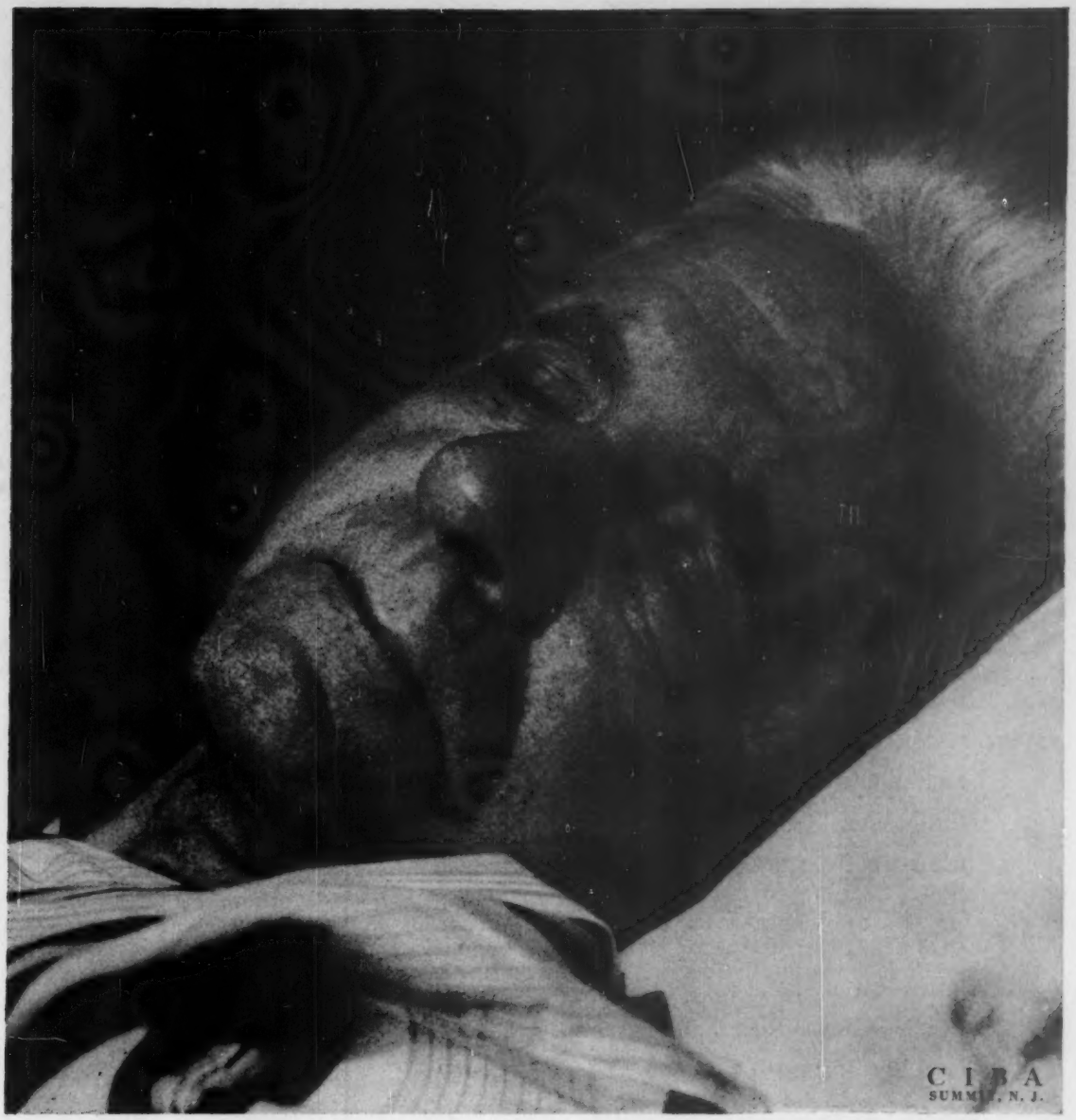

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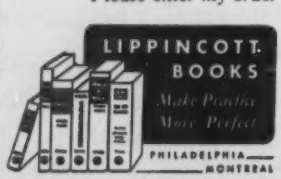

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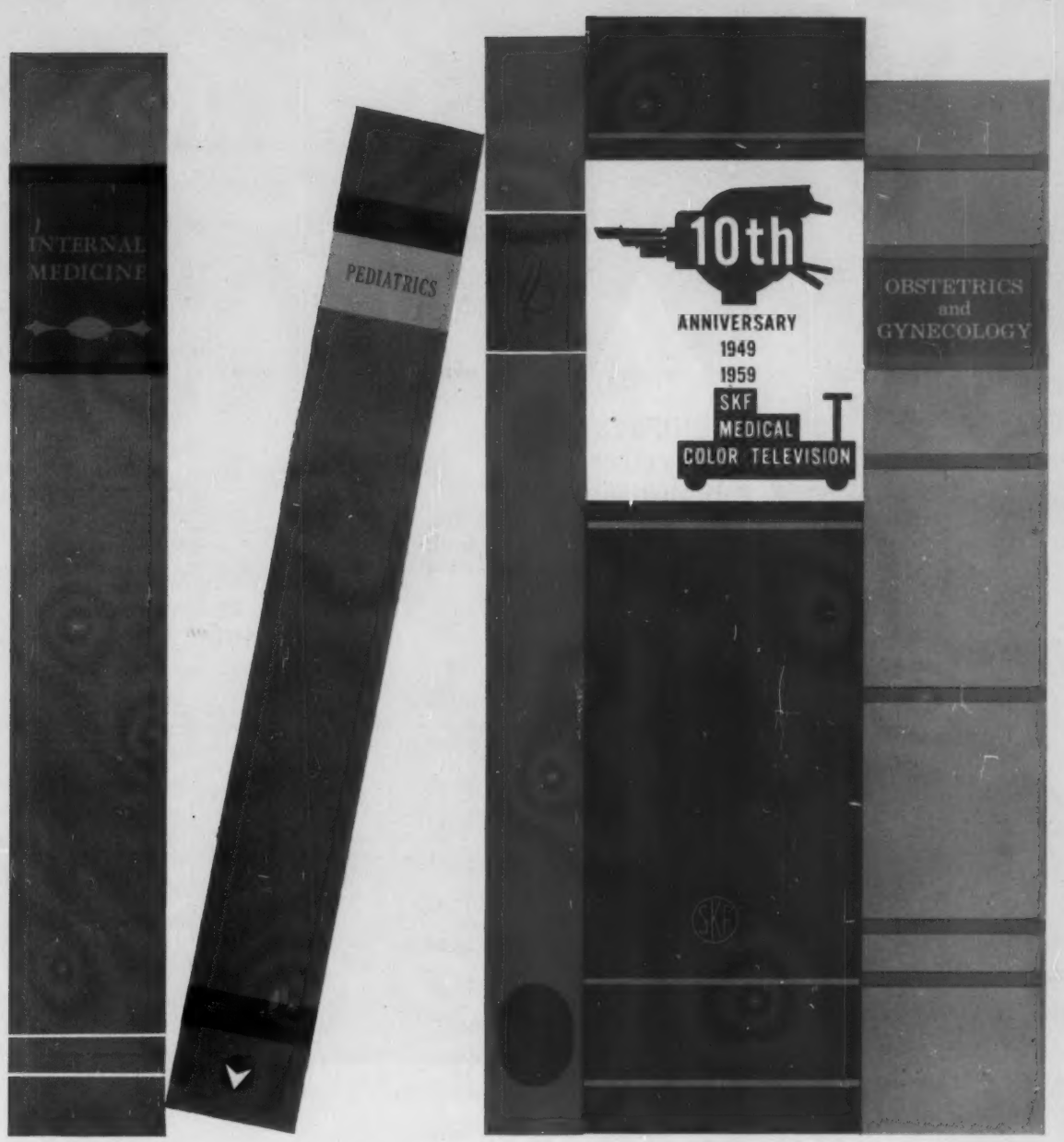

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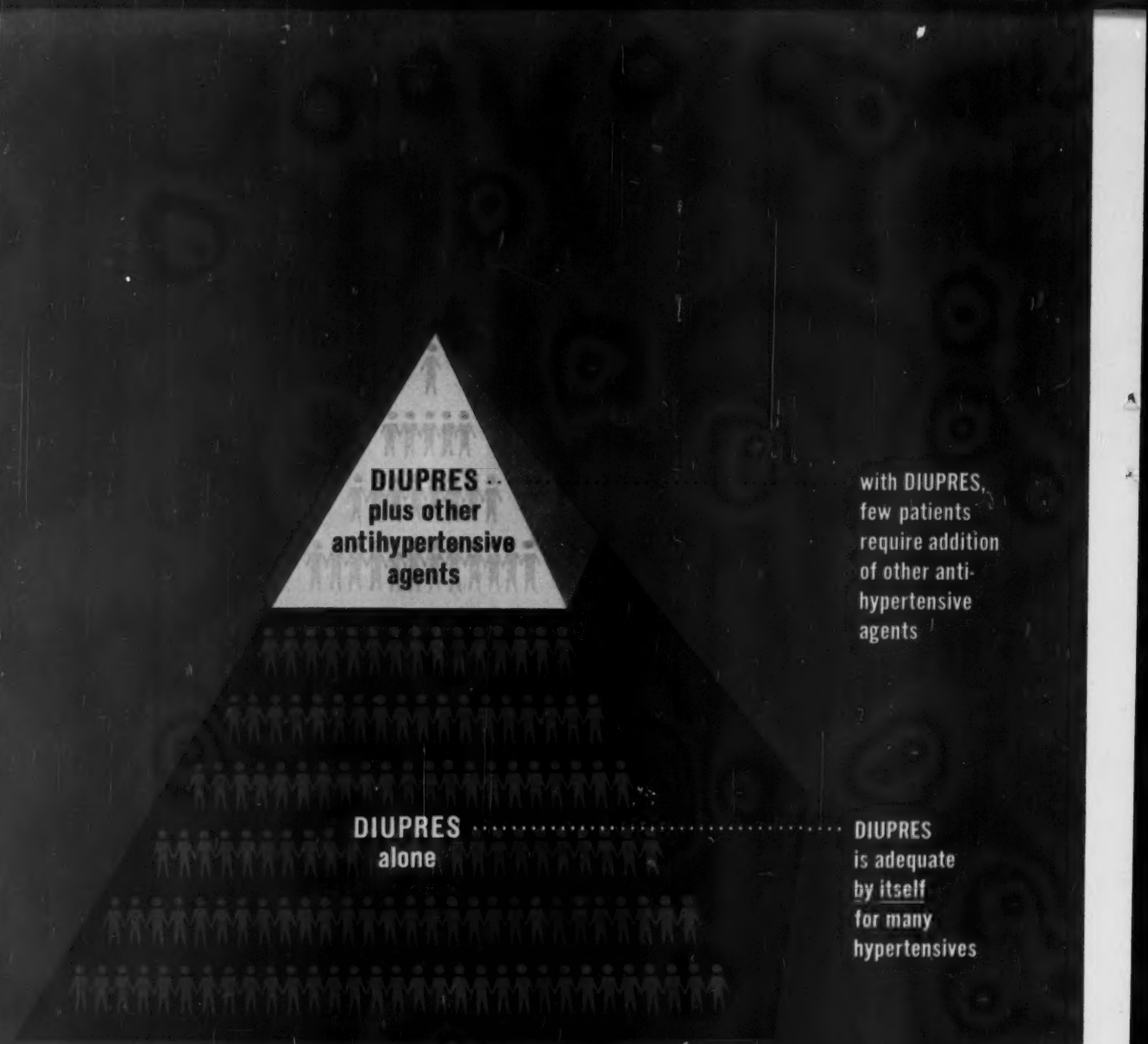

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*DIUPRES AND DIURIL (CHLOROTHIAZIDE) ARE TRADEMARKS OF MERCK & CO., INC.

when pollen allergens attack the nose...

Triaminic provides effective therapy in respiratory allergies because it combines two antihistamines[1,2] with a decongestant.

These antihistamines block the effect of histamine on the nasal and paranasal capillaries, preventing dilation and exudation.[3] *This is not enough;* by the time the physician is called on to provide relief, histamine damage is usually present and should be counteracted.

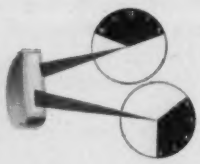
The decongestive action of orally effective phenylpropanolamine helps contract the engorged capillaries,[4] reducing congestion and bringing prompt relief from nasal stuffiness, rhinorrhea, sneezing and sinusitis.[5]

TRIAMINIC is orally administered, systemically distributed and reaches *all* respiratory membranes; it therefore avoids nose drop addiction and is not likely to cause rebound congestion.[6,7] TRIAMINIC can be prescribed for prompt relief in summer allergies, including hay fever.

References: 1. Sheldon, J. M.: Postgrad. Med. 14:465 (Dec.) 1953. 2. Hubbard, T. F. and Berger, A. J.: Annals Allergy p. 350 (May-June) 1950. 3. Kline, B. S.: J. Allergy 19:19 (Jan.) 1948. 4. Goodman, L. S. and Gilman, A.: Pharmacol. Basis Ther., Macmillan, New York, 1956, p. 532. 5. Fabricant, N. D.: E.E.N.T. Monthly 37:460 (July) 1958. 6. Lhotka, F. M.: Illinois M.J. 112:259 (Dec.) 1957. 7. Farmer, D. F.: Clin. Med. 5:1183 (Sept.) 1958.

Triaminic®

TRIAMINIC provides around-the-clock freedom from hay fever and other allergic respiratory symptoms with just one tablet q. 6-8 h. because of the special timed-release design.



Each TRIAMINIC timed-release tablet provides:

Phenylpropanolamine HCl	50 mg.
Pheniramine maleate	25 mg.
Pyrilamine maleate	25 mg.

Also available: TRIAMINIC SYRUP for those patients of all ages who prefer a liquid medication. Each 5 ml. teaspoonful is equivalent to ¼ Triaminic Tablet or ½ Triaminic Juvelet. TRIAMINIC JUVELETS provide half the dosage of the Triaminic Tablet with the same timed-release action for prompt and prolonged relief.

STOP *running noses* *and open stuffed noses orally*

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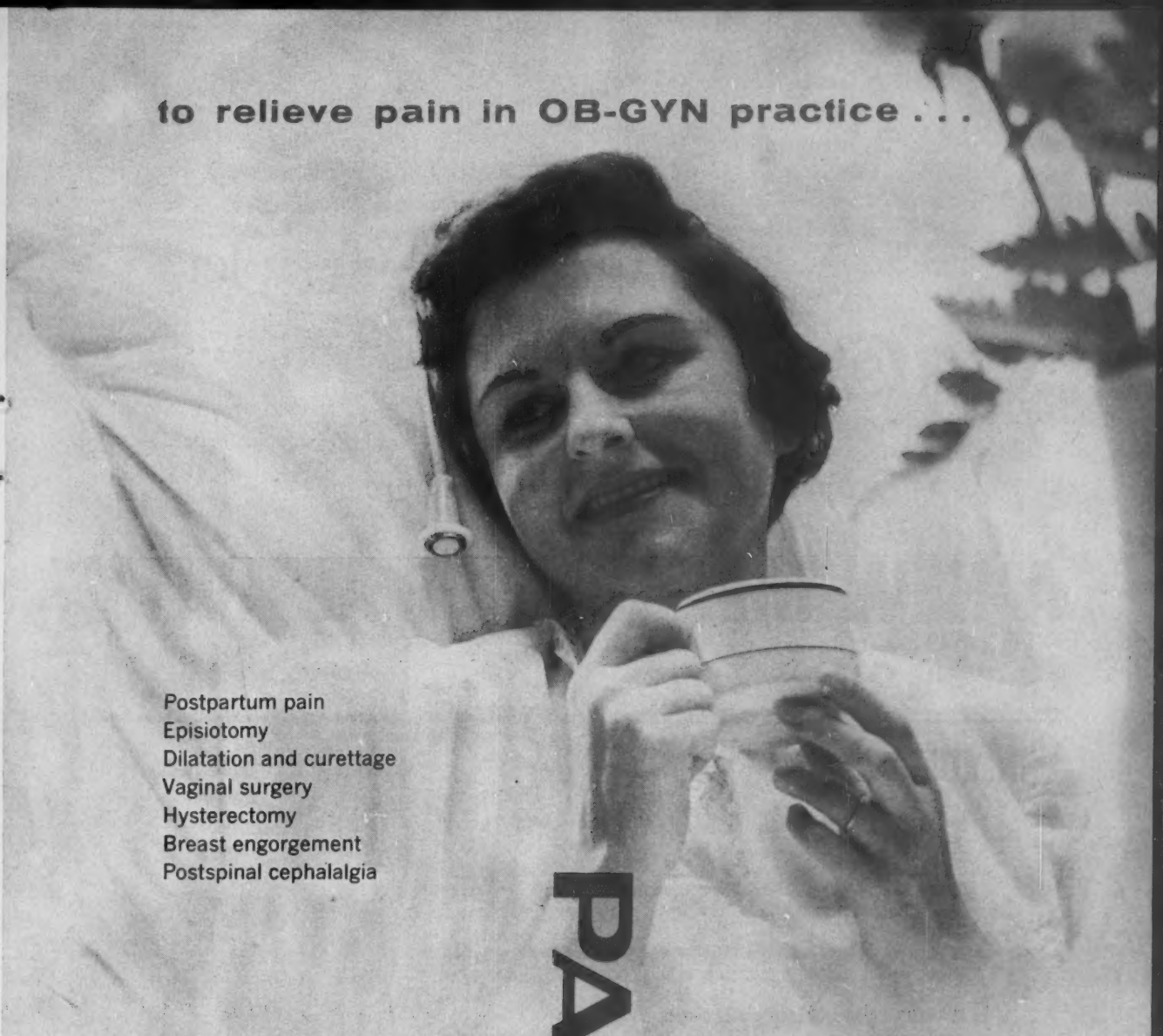
to relieve pain in OB-GYN practice . . .



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After using ZACTIRIN in 92 obstetrical and postsurgical gynecological patients, Roden and Haugen[1] conclude from the patients' own reports: *In obstetrical patients*—"an effective analgesic for the usual types of pain occurring during the postpartum period." *In gynecological patients*—"satisfactorily relieves mild or moderate postoperative pain occurring as the result of major and minor surgical procedures." *Side-effects*—"infrequent and mild and did not necessitate discontinuing use."

Supplied: Tablets, bottles of 48. Each tablet contains 75 mg. of ethoheptazine citrate and 325 mg. (5 grains) of acetylsalicylic acid

1. Roden, J.S., and Haugen, H.M.: Missouri Med. *55*:128 (Feb.) 1958.

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- *orally administered • prompt, long action—relief equivalent to that of codeine*

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- shows greater oral potency than any other class of diuretic agent
- each 25 mg. HYDRODIURIL orally is equivalent to 1.6 cc. meralluride I.M.
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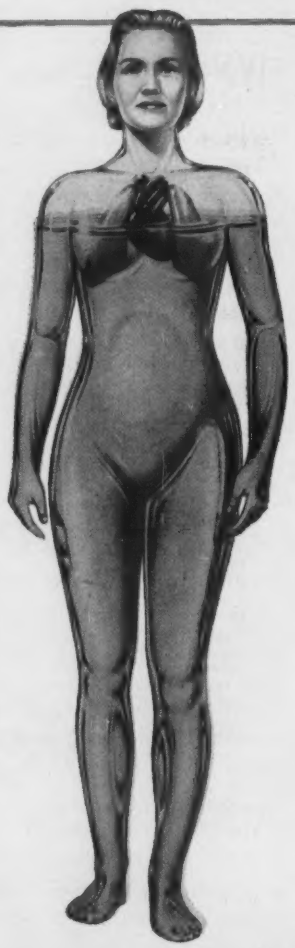
- low toxicity—extremely well tolerated
- often achieves the benefits of a low salt diet without the unpleasant restriction



INDICATIONS: Hypertension, congestive heart failure of all degrees of severity, premenstrual syndrome (edema), edema and toxemia of pregnancy, renal edema—nephrosis, nephritis; cirrhosis with ascites, drug-induced edema, and as adjunctive therapy in the management of obesity complicated by edema.

DOSAGE: In edema—one or two 50 mg. tablets of HYDRODIURIL once or twice a day.

In hypertension—one or two 25 mg. tablets or one 50 mg. tablet HYDRODIURIL once or twice a day.

SUPPLIED: 25 mg. and 50 mg. scored tablets HYDRODIURIL (Hydrochlorothiazide) in bottles of 100 and 1,000.

HYDRODIURIL and DIURIL are trademarks of Merck & Co., INC.

Additional information on HYDRODIURIL is available to the physician on request.

BIBLIOGRAPHY: 1 Esch, A. F., Wilson, I. M. and Freis, E. D.: 3,4-Dihydrochlorothiazide: Clinical Evaluation of a New Saluretic Agent. Preliminary Report; M. Ann. District of Columbia 28:9 (Jan.) 1959. 2 Ford, R. V.: The Clinical Pharmacology of Hydrochlorothiazide; Southern Med. J. 52:40 (Jan.) 1959. 3 Fuchs, M., Bodi, T., Irie, S. and Moyer, J. H.: Preliminary Evaluation of Hydrochlorothiazide ('HYDRODIURIL'); M. Rec. & Ann. 51:872, (Dec.) 1958. 4 Moyer, J. H., Fuchs, M., Irie, S. and Bodi, T.: Some Observations on the Pharmacology of Hydrochlorothiazide; Am. J. Cardiol. 3:113, (Jan.) 1959.

HYDRODIURIL (HYDROCHLOROTHIAZIDE)

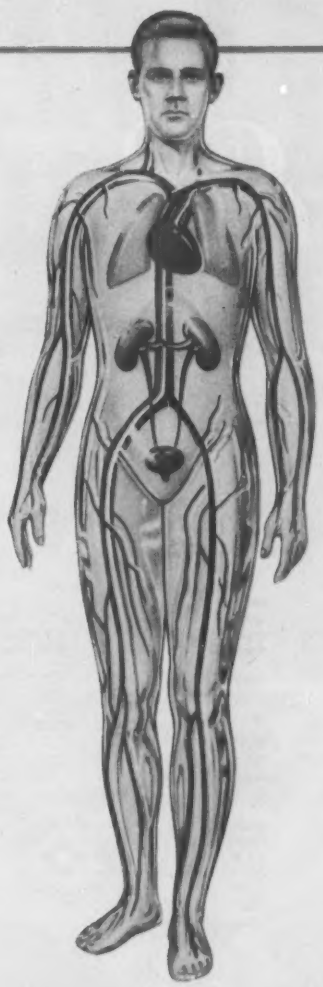
- highly-active derivative of chlorothiazide
- qualitatively similar to DIURIL® but at least 10 to 12 times more potent by weight
- loss of potassium is clinically insignificant in the great majority of patients on normal diets

HYDRODIURIL*

NEW RELEASE

HYDROCHLOROTHIAZIDE

IN HYPERTENSION:



- effective by itself in some patients—markedly potentiates other antihypertensive agents
- provides background therapy to improve and simplify the management of all grades of hypertension
- has been reported by some investigators to have a greater antihypertensive potency in some patients than chlorothiazide at equivalent dosage
- does not lower blood pressure in normotensives
- reduces dosage requirements for other antihypertensive agents, often with concomitant reduction in their distressing side effects
- smooths out blood pressure fluctuations

PRECAUTIONS: It is important that the dosage be adjusted as frequently as the needs of the individual patient demand. When HYDRODIURIL is used with a ganglion blocking agent, it is mandatory to reduce the dose of the latter by at least 50 per cent, immediately upon adding HYDRODIURIL to the regimen.

HYDRODIURIL has shown no adverse effects on renal function; for this reason it may be used with excellent results even in patients for whom the organomercurials are contraindicated because of renal damage.

The excretion of potassium is much lower than that of sodium or chloride and, as is the case with DIURIL®, the loss of potassium is clinically insignificant in the great majority of patients on normal diets. If indicated, potassium loss may easily be replaced by including potassium-rich foods in the diet (orange juice, bananas, etc.).

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A NEW WIDE-SPECTRUM
TOPICAL MICROBICIDE

not an antibiotic... not a sulfonamide ... not a nitrofuran

Triburon

& Triburon-HC

(containing hydrocortisone 0.5%)

EFFECTIVE EVEN AGAINST ANTIBIOTIC-RESISTANT STRAINS

HIGHLY ACTIVE

■ against most "pathogenic cocci [both staphylococci and streptococci] regardless of their resistance to antibiotics."[1]

■ against pathogens common in skin and wound infections.

VIRTUALLY NONSENSITIZING

■ in more than 4500 stringent, closed-patch sensitivity tests, the incidence of allergic response was less than 2 per cent.[2, 3]

■ in initial clinical studies, only 15 of 1014 patients developed evidence of skin irritation.

MINIMAL RESISTANT ORGANISMS

■ laboratory attempts to develop Triburon-resistant strains produced no substantial change in organism sensitivity.[1]

- WIDE-SPECTRUM
- RAPID-ACTING
- WELL TOLERATED
- NONSTAINING
- ODORLESS

DIAGNOSIS AND NO. OF PATIENTS	DURATION OF TREATMENT	RESULTS	ADVERSE REACTIONS
Impetigo contagiosa (50)	Triburon 3-10 days	excellent	none
Ecthyma (24)	Triburon 5-14 days	excellent	none
Pustular folliculitis (16)	Triburon 1-3 weeks	infection controlled	3 complaints of burning
Dermatitis repens (18)	Triburon 1-2 weeks	infection controlled	none
Dermatitis repens (18)	Triburon-HC 1-4 weeks	excellent	none
Secondarily infected eczematous eruption (20)	Triburon 1-2 weeks	infection controlled	none
Secondarily infected eczematous eruption (64)	Triburon-HC 1-4 weeks	excellent	1 complaint of irritation

Chart based on finding of E. Edelson, E. Grunberg and T.V. Morton, Jr.

PACKAGES:
Triburon Ointment, 1-oz tubes and 1-lb jars.
Triburon-HC Ointment, 5-Gm and 20-Gm tubes.

REFERENCES: 1. R. J. Schnitzer, E. Grunberg, W. F. DeLorenzo and R. E. Bagdon, to be published.
2. E. Edelson, E. Grunberg and T. V. Morton, Jr., Antibiotics Annual 1958-1959, New York, Medical Encyclopedia, Inc., 1959.
3. R. C. V. Robinson and L. E. Harmon, Antibiotics Annual 1958-1959.

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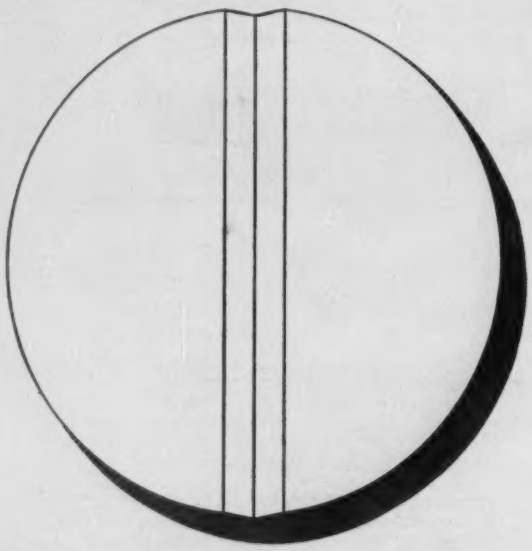

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For the treatment of penicillin susceptible infections—ranging from **mild to moderately severe**—due to **hemolytic streptococcus / pneumococcus / staphylococcus / and for the prevention of streptococcal infections where there is a history of rheumatic fever**

Clinical effectiveness confirmed by millions of cases
Specific in many common infections
Daily dosage may be spaced without regard to mealtime
Ease of administration with oral penicillin
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new convenient oral tablets
PENTIDS '400,' each scored tablet contains 400,000 units of penicillin G potassium buffered, bottles of 12 and 100. Twice the unitage of Pentids 200,000 units.

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no need to TALK *ulcer diets*
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new **KNOX BLAND DIETS BROCHURE**
can provide time-saving dietary guidance

Modern management of gastritis, hyperacidity and peptic ulcer[1] continues to stress the valuable role of bland diets in these conditions. You can save considerable time and avoid much tiresome repetition by utilizing the new Knox BLAND DIETS Brochure in your practice. Based on a recent survey of the literature, **BLAND DIETS in Gastritis and Peptic Ulcer** presents basic facts patients need to know about bland foods, frequent feedings and high protein diet. Easily individualized, this new Knox Brochure enables the ambulatory unhospitalized patient to progress from a soft bland diet to a more liberalized permanent bland diet via four specific menus.

1. Kirsner, J. B.: J.A.M.A. 166:1727, (April 5) 1958.

THE KNOX GELATINE DRINKS

are palatable, nutritional antacids that buffer gastric acidity . . . inhibit enzyme production and reduce motility.

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NEW EDITION
completely re-written—
28 pages—includes
lists of food to avoid,
permitted food and
eight pages of tested,
tasty recipes.

a specific treatment for a **V. I. P.**

your very important patient...
(and what one isn't!)

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(allergy)

controlled by a very important product...
(Polaramine...the newest antihistamine)

The control of your patient's allergy is very important to her. She expects relief — and she can have it with POLARAMINE.

POLARAMINE — *a close approach to a perfect antihistamine* — virtually eliminates side effects and achieves unexcelled therapeutic effectiveness in the management of a wide range of seasonal and nonseasonal allergies at lower dosages than with other antihistamines.

POLARAMINE REPETABS permit patients daylong or nightlong relief from allergic symptoms with a single medication.

Supplied: POLARAMINE REPETABS, 6 mg., bottles of 100 and 1000.
Tablets, 2 mg., bottles of 100 and 1000.
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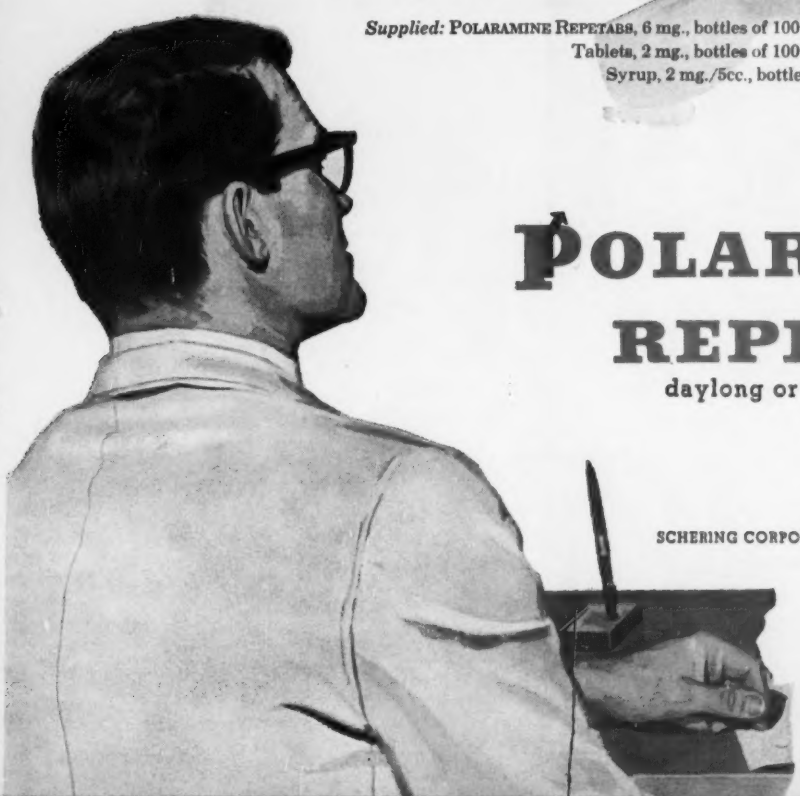

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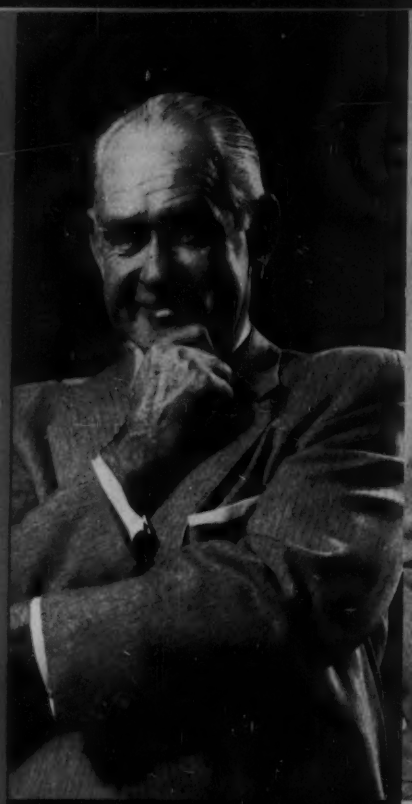
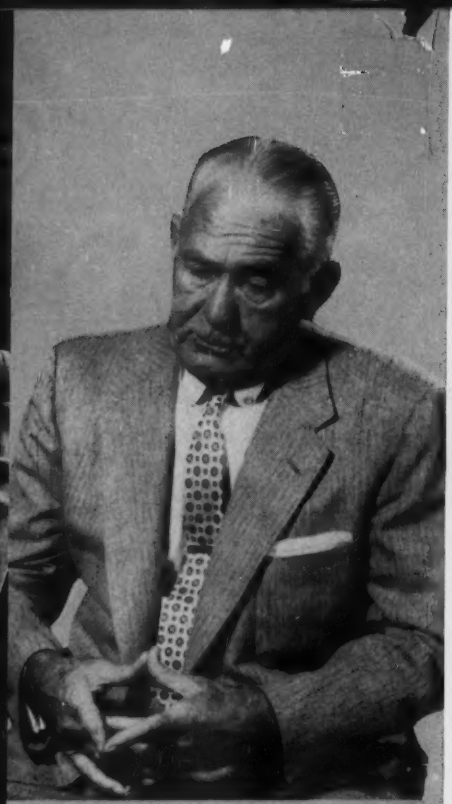
in anxiety and tension your patient can meet the rigors of life



He's...
active
alert



not...
lethargic
inattentive

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1. Batterman, R. C.; Grossman, A. J.; Mouratoff, G. J., and Leifer, P.: A Clinical Re-evaluation of Daytime Sedatives, Scientific Exhibit, Annual Meeting of AMA, San Francisco, June 23-27, 1958.

2. Grossman, A. J.; Batterman, R. C., and Leifer, P.: Fed. Proc. *17*:373 (March) 1958.

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anti-inflammatory activity—increased at least six times (per mg.) over any other steroid

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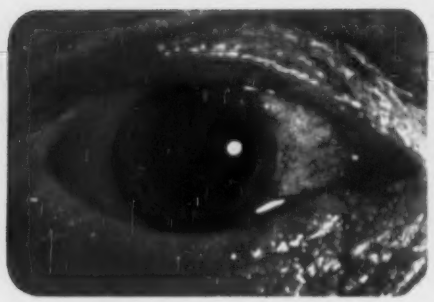
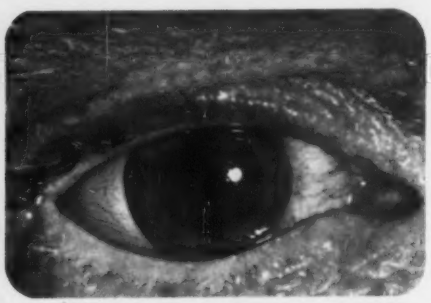
reproducible in your patients, too...
steroid benefits in typical cases*
who received preproved

DERONIL

dexamethasone



Uveitis before therapy.



Same patient after treatment with DERONIL.
Photos courtesy of Dan M. Gordon, M.D., New York.

Severe contact dermatitis before therapy.

Marked improvement after 9 days on DERONIL.
Photos courtesy of G. C. Andrews, M.D., and A. N. Domonkos, M.D., New York.

		Before DERONIL	After DERONIL
Patient C. J., female, 57.	Rheumatoid arthritis of 3 years' duration.	Swelling in elbows, hands and ankles—"has never been free from pain."	Feeling fine; pain completely relieved.
Patient F. S., male, 68.	Intractable bronchial asthma and emphysema for 12 years.	Bedridden.	Now "up and about"—active out-of-doors.
Patient M. B., female, 27.	Acute nongranulomatous uveitis of both eyes.	Pain, redness and photophobia—vision 20/40 and blurred.	Symptoms suppressed; vision restored after failure of previous steroid.
Patient A. C., female, 46.	Acute, generalized exfoliative dermatitis.	Itching, skin peeling—refractory to all conventional therapy.	Clearing of most lesions, relief of prurigo.

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Effective also in acute rheumatic fever, bursitis, pulmonary emphysema and fibrosis, intractable hay fever (pollenosis), disseminated lupus erythematosus, allergic and inflammatory dermatoses and eye diseases and adrenogenital syndrome. For complete information on indications, dosage, precautions and contraindications, consult Schering literature.

*Reports to Clinical Research Division, Schering Corporation.

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Milpath acts quickly to suppress hypermotility, hypersecretion and spasm, and to allay anxiety and tension. The loginess, dry mouth and blurred vision so characteristic of some barbiturate-belladonna combinations are minimal with Milpath.

Formula: each scored tablet contains: meprobamate 400 mg., tridihexethyl chloride 25 mg. *(formerly supplied as the iodide)*

Dosage: 1 tablet t.i.d. with meals and 2 tablets at bedtime.

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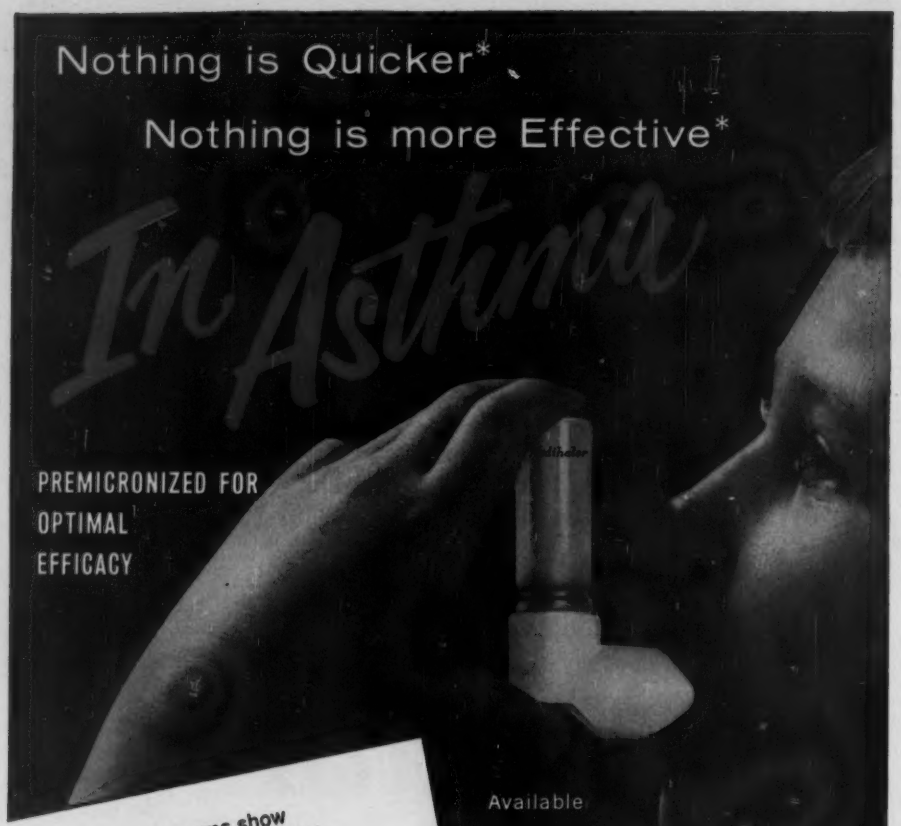
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PREMICRONIZED FOR OPTIMAL EFFICACY
Available with either isoproterenol or epinephrine
*Spirograms show 22½% improvement in vital capacity within moments after inhalation of Medihaler medication.
Recorded in the Lung Station (Tufts) at the Boston City Hospital, Maurice S. Segal, M.D., Director.

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Nonbreakable...Shatterproof
Spillproof...Leakproof

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Isoproterenol sulfate, 2.0 mg. per cc., suspended in inert, nontoxic aerosol vehicle. Contains no alcohol. Each measured dose contains 0.06 mg. isoproterenol.

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Epinephrine bitartrate, 7.0 mg. per cc., suspended in inert, nontoxic aerosol vehicle. Contains no alcohol. Each measured dose contains 0.15 mg. epinephrine.

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WASHINGTON NEWS

Lawmakers Boost Medical Research Funds . .

A.M.A. Backs Voluntary Health Plan for U. S. Workers . .

Radiation Danger Levels Changed . .

Physician Increase Predicted . .

Government Files Suit Versus Vitamin Company . .

Warning Issued on Lens Cleanser . .

Miscellany . .

HOUSE APPROVES RESEARCH MONEY BOOST

The House ignored administration economy warnings and voted a large increase in funds for medical research. Acting on an appropriations measure carrying money for the Labor Department and the Department of Health, Education, and Welfare, the lawmakers okayed a boost of more than 50 million dollars for research programs of the National Institutes of Health.

All told, NIH would receive $344,279,000 under the House bill, compared with the $292,700,000 requested. The extra 50 million dollars was distributed about equally among the institutes concerned with cancer, mental health, heart disease, dental health, arthritis and metabolic diseases, allergies, neurology and blindness, and general research.

The House Appropriations Committee, which handled the legislation, criticized the administration for not seeking more money for the programs. In a report, the majority of the committee said those who prepared the budget "obviously had been assigned the task of making it appear that the budget represented progress in the field of medical research when the true facts are that in a desperate attempt to present, on paper, a balanced budget, the Bureau of the Budget, or someone in authority, had even gone so far as to set back the medical research program."

Although the administration requested the same sum for NIH that Congress approved last year, the lawmakers contended that rising operating costs would mean a restricted program this year.

The committee said that there is so much hope for medical research progress that this is no time to curtail the programs. Any reduction at this time for the cancer program, it said, "would be a gross foolishness."

Other sections of the measure approved by the House and sent to the Senate would (1) provide $143,700,000 for hospital construction grants, a boost of $42,500,000; (2) appropriate 30 million dollars for construction grants for state and local health research facilities, 10 million dollars more than requested; and (3) earmark $45,500,000 for Indian health facilities, more than 2 million dollars above the budget figure.

Replying to the congressional criticism, Arthur S. Flemming, Secretary of Health, Education, and Welfare, declared that "every statement and figure presented to the committee was presented in good faith." The report, he said, "seeks to convey to the American public the impression that this administration is unwilling to request adequate support for the activities of the National Institutes of Health. . . . This impression is clearly misleading."

A. M. A. STATES POSITION ON HEALTH INSURANCE FOR FEDERAL WORKERS

The American Medical Association told Congress that any voluntary health and medical insurance program for federal workers should steer clear of establishing medical fees and should cover already-retired employees.

In a letter to Chairman Olin Johnston (D., S. C.) of the Senate Labor and Public Welfare Committee, Dr. F. J. L. Blasingame, A. M. A. Executive Vice-president, renewed the organization's support for the principle of an insurance program for civilian government workers similar to those now used by many private companies.

A Labor and Public Welfare subcommittee headed by Sen. Richard Neuberger (D., Ore.) has wound up hearings on the issue and is considering what kind of legislation to approve.

Some changes in the major measure before the subcommittee—a bill introduced by Sen. Johnston—were suggested by the A. M. A. official. "It is our belief that satisfactory amendments could be made rather easily within the framework of this legislation," he declared.

Five broad recommendations were made by the A. M. A. They were that the program should permit a realistic choice of plan by the individual employe; permit all qualified carriers to offer coverage; require financial participation by the employe in paying premiums; provide for a minimum of governmental regulatory authority over participating plans; and allow adequate prefunding for persons who retire after July 1, 1959, as well as a method by which those who retired before that date can participate on a contributory basis.

In addition, said Dr. Blasingame, "it is our definite recommendation that fee schedules not be established by the (Civil Service) Commission." He noted that it was not clear from the language of the measure whether this would be possible. Instead, he said, there should be authorization under the major medical program for payment of a stipulated percentage of the "usual and customary" charges, as most private policies specify.

"The most objectionable features of the bill," said Dr. Blasingame vest authority in the CSC to select "one or more insuring companies" to provide group major medical coverage, and the assumption by the government of the entire cost of this insurance. The A. M. A. official also said language should be changed to make it clear that Blue Cross and Blue Shield could underwrite major medical coverage.

COMMITTEE REVISES RADIATION DANGER LIMITS

A Committee of radiation experts downgraded the radioactive peril of strontium-90 but at the same time calculated that another radioactive byproduct of nuclear tests—cesium-137—is more dangerous than hitherto believed.

According to the National Committee on Radiation Protection and Measurements, civilians may consume through food and drink as much as 100 micromicrocuries of strontium-90 over a lifetime without exceeding maximum permissible concentrations. The previous level was 80 micromicrocuries.

However, the experts slashed by two-thirds the amount of cesium-137 that could accumulate safely in the bodies of workers at atomic installations.

Strontium-90 is the element that in large quantities can cause leukemia and bone cancer. Cesium-137 can cause genetic damage. The levels of both in the atmosphere and in food and drink have been subjects of controversy over whether nuclear tests are depositing too much radioactive matter.

The Committee on Radiation Protection is composed of government and private scientists. Its danger levels are used as guidelines by the government.

At present, the Public Health Service is conducting nationwide tests of milk to determine the amount of strontium-90 in the fluid. So far, the levels have remained well below maximum permissible concentrations. However, Dr. Francis J. Weber, Chief of the PHS Division of Radiological Health, told a House Appropriations Subcommittee recently that there is a rising trend in the radioactive content of milk. He said this will continue until 1970 or 1975 and that the level may reach the maximum permissible concentration. "When that might occur, we do not know," he said.

MEDICAL SCHOOL ENROLLMENT SEEN INCREASING

The long-term increase in medical students will be much greater than the increase in the population, the Executive Vice-president of the American Medical Association said in a letter placed in the Congressional Record.

The A. M. A. official, Dr. F. J. L. Blasingame, said, "The future, I believe, looks bright. Each year for the past 11 years, the number of students enrolled in approved medical schools has increased."

The statements were made in a letter to Rep. Clark W. Thompson (D., Tex.), who had asked for information on "the prospects for an adequate supply of physicians to meet the needs of our growing population."

Dr. Blasingame said that enrollments in medical schools are strictly determined by the individual school, not by the A. M. A. He also declared the medical profession "welcomes one-time federal grants for medical school construction and renovation as well as federal grants for basic research." But Dr. Blasingame said that "the profession has been opposed to continuing federal aid for operating expenses because of the potentialities therein for federal control."

FDA ACCUSES CALIFORNIA VITAMIN FIRM

The Food and Drug Administration has filed criminal charges against a California laboratory for making allegedly false claims about vitamin capsules and mineral tablets. The firm, Visan Nutritional Laboratories, Burbank, was accused of violating the Federal Food, Drug and Cosmetic Act in papers filed with the U. S. District Court in Los Angeles.

According to the FDA, the company falsely claimed that its product—Vi-San Food Supplement Therapeutic—was an effective treatment for a wide range of health problems and diseases, including lusterless eyes, cancer, deafness, blindness, emotional instability, and cerebral palsy.

Maximum penalty for each count of violating the act by a company is a $1,000 fine. Five charges were leveled against the company by FDA, but no individuals were named.

DANGEROUS CONTACT LENS CLEANER

The Food and Drug Administration has warned persons who wear contact eyeglasses to avoid using a product called Barnes-Hind Wetting Solution; the cleanser is distributed across the United States and is sold to practitioners who prescribe contact lenses.

FDA said the product is nonsterile and that a dangerous infection may occur in the eye if any injury or infection is present. A bacterium, Pseudomonas aeruginosa, that was isolated in one lot can cause blindness. The manufacturer, Barnes-Hind Ophthalmic Products, Inc., Sunnyvale, Calif., and the government are attempting to recall all outstanding stocks.

MISCELLANY

The Senate voted to extend the federal Air Pollution Control Program until 1964. The measure also would increase the authorization for the program from 5 million dollars to $7,500,000 a year. Under the program, the government provides grants for studies and research in the field of air pollution.

The Public Health Service awarded a $2,900,000 contract for construction of a 200-bed PHS hospital at Gallup, N. Mex. It will be the largest Indian hospital in the country.

The National Institutes of Health awarded 18 grants totaling $498,790 to support the training of research scientists in eight basic medical and health related sciences. The money will go to 18 institutions and universities in 10 states to provide support for training in the following fields: biochemistry, research anesthesiology, research dermatology, genetics, pharmacology, experimental pathology, physiology, and anatomy.

The Veterans Administration reported that an oral dental examination in the physical check given patients entering hospitals has proved valuable in diagnosing cancer. Since oral examination was adopted generally by the VA two and a half years ago, some 700 cases of malignancy of the mouth, tongue, and throat have been found that might otherwise have been unidentified until too late for successful treatment.

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SEARLE

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. F. J. L. Blasingame, 535 North Dearborn St., Chicago 10, Executive Vice President.
1959 Annual Meeting, Atlantic City, June 8-12.
1959 Clinical Meeting, Dallas, Texas, Dec. 1-4.
1960 Annual Meeting, Miami Beach, Fla., June 13-17.
1960 Clinical Meeting, Washington, D. C., Nov. 29-Dec. 2.
1961 Annual Meeting, New York City, June 26-30.
1961 Clinical Meeting, Denver, Nov. 28-Dec. 1.

AMERICAN

1959

May

AMERICAN ASSOCIATION FOR THE HISTORY OF MEDICINE, Wade Park Manor, Cleveland, May 21-23. Dr. John B. Blake, Smithsonian Institution, Washington 25, D. C., Secretary.

AMERICAN ASSOCIATION ON MENTAL DEFICIENCY, Hotel Schroeder, Milwaukee, May 19-23. Dr. Neil A. Dayton, Mansfield State Training School & Hospital, Mansfield Depot, Conn., Secretary-Treasurer.

AMERICAN COLLEGE OF CARDIOLOGY, Benjamin Franklin Hotel, Philadelphia, May 26-29. Dr. Philip Reichert, 480 Park Ave., New York 22, Secretary.

AMERICAN COLLEGE HEALTH ASSOCIATION, Warwick Hotel, Philadelphia, May 6-9. Dr. Bruce S. Roxby, Temple University Health Service, Broad St. & Montgomery Ave., Philadelphia 22, Chairman, Committee on Local Arrangements.

AMERICAN GYNECOLOGICAL SOCIETY, The Homestead, Hot Springs, Va., May 21-23. Dr. Andrew A. Marchetti, 3800 Reservoir Rd., N. W., Washington 7, D. C., Secretary.

AMERICAN OPHTHALMOLOGICAL SOCIETY, The Homestead, Hot Springs, Va., May 28-30. Dr. Maynard C. Wheeler, 30 West 59th St., New York 19, Secretary.

AMERICAN SOCIETY OF MAXILLOFACIAL SURGEONS, Palmer House, Chicago, May 10-14. Dr. Orion H. Stuteville, 700 N. Michigan, Chicago 11, Secretary.

AMERICAN TRUDEAU SOCIETY, Palmer House, Chicago, May 25-27. Dr. E. P. K. Fenger, 1790 Broadway, New York 19, Secretary.

AMERICAN UROLOGICAL ASSOCIATION, WESTERN SECTION, Monterey, Calif., May 17-21. Dr. James Ownby Jr., 516 Sutter St., San Francisco, Registration Chairman.

GEORGIA, MEDICAL ASSOCIATION OF, Bon Air Hotel, Augusta, May 17-20. Mr. Milton D. Kreuger, 875 W. Peachtree St., N. W., Atlanta, Executive Secretary.

ILLINOIS STATE MEDICAL SOCIETY, Hotel Sherman, Chicago, May 19-22. Dr. Harold M. Camp, 224 S. Main St., Monmouth, Secretary.

INTERNATIONAL COLLEGE OF SURGEONS, ALABAMA SURGICAL SECTION, Erskine Hotel, Huntsville, May 21-22. Dr. E. V. Caldwell, 2515 Memorial Pkwy., S. E., Huntsville, Ala., General Chairman.

INTERNATIONAL COLLEGE OF SURGEONS, NEW YORK STATE SECTION, Concord Hotel, Kiamesha Lake, May 28-31. Dr. Milton S. Weinberg, 3741 75th St., Jackson Heights, N. Y., Chairman, Arrangements Committee.

MASSACHUSETTS MEDICAL SOCIETY, Hotel Statler, Boston, May 19-21. Dr. Robert W. Buck, 22 The Fenway, Boston 15, Secretary.

MINNESOTA STATE MEDICAL ASSOCIATION, Hotel Duluth, Duluth, May 25-27. Mr. R. R. Rosell, 496 Lowry Medical Arts Bldg., St. Paul 2, Minn., Executive Secretary.

MISSISSIPPI STATE MEDICAL ASSOCIATION, Hotel Buena Vista, Biloxi, May 12-14. Mr. Rowland B. Kennedy, 735 Riverside Dr., Jackson, Executive Secretary.

NATIONAL CONFERENCE ON WORLD HEALTH (SECOND), Statler Hotel, Washington, D. C., May 7-9. Mr. Philip E. Nelbach, National Citizens Committee for WHO, 1790 Broadway, New York 19, Executive Secretary.

NATIONAL TUBERCULOSIS ASSOCIATION, Palmer House, Chicago, May 24-29. Mrs. Wallace B. White, 1790 Broadway, New York 19, Secretary.

NEVADA ACADEMY OF GENERAL PRACTICE, Hotel Riverside, Reno, May 21-23. For information write Dr. Roy M. Peters, 495 S. Arlington Ave., Reno, Nev.

NEW YORK, MEDICAL SOCIETY OF THE STATE OF, Hotel Statler, Buffalo, May 9-15. Dr. Walter P. Anderton, 386 Fourth Ave., New York 16, Secretary.

OGDEN SURGICAL SOCIETY, Ogden, Utah, May 20-22. Dr. O. E. Grua, 412 First Security Bldg., Ogden, Utah, Secretary.

OHIO VALLEY PROCTOLOGIC SOCIETY, French Lick, Ind., May 14. Dr. Gerson Carmel, 214 Doctors Bldg., Cincinnati 2, Secretary.

PACIFIC NORTHWEST SOCIETY OF PATHOLOGISTS, Olympic Hotel, Seattle, May 14-16. Dr. Nelson R. Niles, University of Oregon Medical School, Portland 1, Ore., Secretary-Treasurer.

RHODE ISLAND MEDICAL SOCIETY, Providence, May 12-13. Mr. John E. Farrell, 106 Francis St., Providence 3, Executive Secretary.

SOCIETY OF AMERICAN BACTERIOLOGISTS, Sheraton Jefferson Hotel, St. Louis, May 10-15. Dr. E. M. Foster, University of Wisconsin, Madison 6, Wis., Secretary.

SOCIETY FOR PEDIATRIC RESEARCH, The Inn, Buck Hill Falls, Pa., May 8-9. Dr. Clark D. West, Children's Hosp., Cincinnati 29, Secretary.

SOUTH CAROLINA MEDICAL ASSOCIATION, Columbia Hotel, Columbia, May 12-14. Mr. M. L. Meadors, 309 W. Evans St., Florence, Executive Secretary.

June

AMERICAN ACADEMY OF TUBERCULOSIS PHYSICIANS, Atlantic City, N. J., June 6. Dr. Oscar S. Levin, P. O. Box 7011, Denver 6, Secretary.

AMERICAN COLLEGE OF ANGIOLOGY, WORLD CONFERENCE ON ANGIOLOGY, Marlborough Blenheim Hotel, Atlantic City, N. J., June 5-7. Dr. Alfred Halpern, 11 Hampton Court, Great Neck, N. Y., Executive Secretary.

AMERICAN COLLEGE OF CHEST PHYSICIANS, Atlantic City, N. J., June 3-7. Mr. Murray Kornfeld, 112 E. Chestnut St., Chicago 11, Executive Director.

AMERICAN DERMATOLOGICAL ASSOCIATION, Claridge Hotel, Atlantic City, N. J., June 1-4. Dr. Wiley M. Sams, 25 Southeast 2d Ave., Miami, Fla., Secretary.

AMERICAN DIABETES ASSOCIATION, Chalfonte-Haddon Hall, Atlantic City, N. J., June 6-7. Dr. E. Paul Sheridan, 1 East 45th St., New York 17, Secretary.

AMERICAN ELECTROENCEPHALOGRAPHIC SOCIETY, Claridge Hotel, Atlantic City, N. J., June 11-14. Dr. Jerome K. Merlis, University Hospital, Baltimore 1, Secretary.

AMERICAN GASTROENTEROLOGICAL ASSOCIATION, Claridge Hotel, Atlantic City, N. J., June 5-6. Dr. Franz J. Ingelfinger, 69 E. Newton St., Boston 18, Secretary.

AMERICAN GASTROSCOPIC SOCIETY, Atlantic City, June 7. Dr. Arthur M. Olsen, 200 First St., S. W., Rochester, Minn., Secretary-Treasurer.

AMERICAN GERIATRICS SOCIETY, Hotel Traymore, Atlantic City, N. J., June 4-5. Dr. Richard J. Kraemer, 2907 Post Rd., Warwick, R. I., Secretary.

AMERICAN MEDICAL ASSOCIATION, Traymore Hotel, Atlantic City, N. J., June 8-12. Dr. F. J. L. Blasingame, 535 N. Dearborn St., Chicago 10, Executive Vice-President.

AMERICAN MEDICAL WOMEN'S ASSOCIATION, Sheraton Ritz Carlton Hotel, Atlantic City, N. J., June 4-7. Miss Lillian T. Majally, 1790 Broadway, New York 19, Executive Secretary.

AMERICAN NEUROLOGICAL ASSOCIATION, Claridge Hotel, Atlantic City, N. J., June 15-17. Dr. Charles Rupp, 133 S. 36th St., Philadelphia 4, Secretary.

AMERICAN ORTHOPEDIC ASSOCIATION, Lake Placid Club, Lake Placid, N. Y., June 16-18. Dr. Lee Ramsey Straub, 535 E. 70th St., New York 21, Secretary.

AMERICAN PHYSICAL THERAPY ASSOCIATION, Hotel Leamington, Minneapolis, June 21-26. Miss Annetta Cornell Wood, 1790 Broadway, New York 19, Executive Director.

AMERICAN PROCTOLOGIC SOCIETY, Shelburne Hotel, Atlantic City, N. J., June 15-18. Dr. Norman D. Nigro, 10 Peterboro St., Detroit 1, Secretary.

AMERICAN RHEUMATISM ASSOCIATION, Mayflower Hotel, Washington, D. C., June 2-6. Dr. Edward F. Hartung, 580 Park Ave., New York 21, Secretary.

AMERICAN THERAPEUTIC SOCIETY, Shelburne Hotel, Atlantic City, N. J., June 4-7. Dr. Oscar B. Hunter Jr., 915-19th St., N. W., Washington 6, D. C., Secretary.

ASSOCIATION FOR RESEARCH IN OPHTHALMOLOGY, INC., Atlantic City, N. J., June 8-12. Dr. Lorand V. Johnson, 10515 Carnegie Ave., Cleveland 6, Secretary-Treasurer.

CATHOLIC HOSPITAL ASSOCIATION OF THE UNITED STATES AND CANADA, St. Louis, June 1-4. Mr. M. R. Kneifl, 1438 S. Grand Blvd., St. Louis 4, Executive Secretary.

GASTROENTEROLOGY RESEARCH GROUP, Claridge Hotel, Atlantic City, N. J., June 4. For information write Dr. Charles F. Code, Mayo Clinic, Rochester, Minn.

IDAHO STATE MEDICAL ASSOCIATION, Sun Valley, June 14-17. Mr. Armand L. Bird, 364 Sonna Bldg., Boise, Executive Secretary.

INTERMOUNTAIN PEDIATRIC SOCIETY, Sun Valley, Idaho, June 26-28. Dr. J. R. Newton, Memorial Medical Center, 2000 S. 9th E., Salt Lake City, Utah, Publicity Chairman.

INTERNATIONAL CARDIOVASCULAR SOCIETY, NORTH AMERICAN CHAPTER, Hotel Shelburne, Atlantic City, N. J., June 6. Dr. Paul T. DeCamp, 3503 Prytania St., New Orleans, Secretary.

MAINE MEDICAL ASSOCIATION, The Samoset, Rockland, June 21-23. Dr. Daniel F. Hanley, P. O. Box 240, Brunswick, Executive Director.

MEDICAL LIBRARY ASSOCIATION, King Edward-Sheraton Hotel, Toronto, Can., June 15-19. Miss Nettie A. Mehne, The Upjohn Co., Kalamazoo, Mich., Secretary.

SOCIETY FOR INVESTIGATIVE DERMATOLOGY, Ritz Carlton Sheraton Hotel, Atlantic City, N. J., June 6-7. Dr. Herman Beerman, 255 S. 17th St., Philadelphia 3, Secretary.

SOCIETY OF BIOLOGICAL PSYCHIATRY, Claridge Hotel, Atlantic City, N. J., June 13-14. Dr. George N. Thompson, 2010 Wilshire Blvd., Los Angeles 57, Secretary.

SOCIETY OF NUCLEAR MEDICINE, Palmer House, Chicago, June 18-20. Dr. Morris T. Friedell, 104 S. Michigan Ave., Chicago 3, Chairman, Press & Public Relations Committee.

SOUTH DAKOTA STATE MEDICAL ASSOCIATION, Sheraton Johnson Hotel, Rapid City, June 20-23. Mr. John C. Foster, 300, 1st National Bank Bldg., Sioux Falls, Executive Secretary.

THE ENDOCRINE SOCIETY, Chalfonte-Haddon Hall, Atlantic City, N. J., June 4-6. Dr. Henry T. Turner, 1200 N. Walker St., Oklahoma City 3, Secretary.

WYOMING STATE MEDICAL ASSOCIATION, Jackson Lake Lodge, Moran, June 11-14. Mr. Arthur R. Abbey, Box 2036, Cheyenne, Executive Secretary.

July

AMERICAN SOCIETY OF FACIAL PLASTIC SURGERY, New York City, July 17. Dr. Samuel M. Bloom, 123 E. 83rd St., New York 28, Secretary.

AMERICAN SOCIETY OF X-RAY TECHNICIANS, Shirley Savoy Hotel, Denver, July 4-9. Miss Genevieve J. Eilert, 16 14th St., Fond du Lac, Wis., Executive Secretary.

OREGON CANCER CONFERENCE, University of Oregon Medical School, Portland, July 16-17. Dr. Martin A. Howard, 1115 S. W. Taylor St., Portland 5, Ore., Chairman.

ROCKY MOUNTAIN CANCER CONFERENCE, Brown Palace Hotel, Denver, July 22-23. Dr. N. Paul Isbell, 835 Republic Bldg., Denver 2, Chairman.

August

AMERICAN CONGRESS OF PHYSICAL MEDICINE AND REHABILITATION, Hotel Leamington, Minneapolis, Aug. 30-Sept. 4. Miss Dorothea C. Augustin, 30 N. Michigan Ave., Chicago 2, Executive Secretary.

(Continued on page 32)

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1. Nussbaum, H. E., Lee, W. A., Mattia, V. C., Jr. and Hillman, R. W.: An effective combination in the treatment of the hypertensive patient. Am. J. M. Sc. 234: 150, Aug. 1957.

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AMERICAN DIETETIC ASSOCIATION, Statler Hilton, Los Angeles, Aug. 25-28. Miss Ruth M. Yakel, 620 N. Michigan Ave., Chicago 11, Executive Secretary.

AMERICAN HOSPITAL ASSOCIATION, Statler Hotel, New York City, Aug. 24-27. Dr. Edwin L. Crosby, 18 E. Division St., Chicago, Director and Secretary.

AMERICAN VETERINARY MEDICAL ASSOCIATION, Hotel Muehlebach, Kansas City, Mo., Aug. 24-28. H. E. Kingman Jr., D.V.M., 600 S. Michigan Ave., Chicago 5, Executive Secretary.

BIOLOGICAL PHOTOGRAPHIC ASSOCIATION, INC., Sheraton-Mount Royal Hotel, Montreal, Canada, Aug. 31-Sept. 3. Miss Jane H. Waters, Box 1668, Grand Central P. O., New York 17, Executive Secretary.

NATIONAL MEDICAL ASSOCIATION, Detroit, Aug. 10-13. Dr. John T. Givens, 1108 Church St., Norfolk, Va., Secretary.

NEVADA STATE MEDICAL ASSOCIATION, Reno, Aug. 19-22. Dr. Gilbert G. Lenz, 505 S. Arlington Ave., Reno, Nev., Chairman.

ROCKY MOUNTAIN RADIOLOGICAL SOCIETY, Shirley-Savoy Hotel, Denver, Aug. 20-22. Dr. John H. Freed, 4200 E. Ninth Ave., Denver 20, Secretary-Treasurer.

WEST VIRGINIA STATE MEDICAL ASSOCIATION, The Greenbrier, White Sulphur Springs, Aug. 20-22. Mr. Charles Lively, P. O. Box 1031, Charleston 24, Executive Secretary.

September

AMERICAN ASSOCIATION OF MEDICAL CLINICS, Sheraton-Blackstone Hotel, Chicago, Sept. 24-26. Dr. Edwin P. Jordan, Box 58, Charlottesville, Va., Executive Secretary.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS, The Homestead, Hot Springs, Va., Sept. 10-12. Dr. E. Stewart Taylor, 4200 E. Ninth Ave., Denver 20, Secretary.

AMERICAN ASSOCIATION FOR THE SURGERY OF TRAUMA, Mount Washington Hotel, Bretton Woods, N. H., Sept. 24-26. Dr. William T. Fitts, Jr., 3400 Spruce St., Philadelphia 4, Secretary.

AMERICAN COLLEGE OF GASTROENTEROLOGY, Biltmore Hotel, Los Angeles, Sept. 19-26. Mr. Daniel Weiss, 33 W. 60th St., New York 23, N. Y., Executive Director.

AMERICAN COLLEGE OF SURGEONS, The Traymore Hotel, Atlantic City, N. J., Sept. 28-Oct. 2. Dr. Paul R. Hawley, 40 E. Erie St., Chicago 11, Director.

AMERICAN COLLEGE OF SURGEONS, OHIO CHAPTER, Statler Hotel, Cleveland, Sept. 11-12. Dr. Berton M. Bogle, 311 S. Market, Troy, Ohio, Secretary-Treasurer.

AMERICAN ROENTGEN RAY SOCIETY, The Netherland Hilton Hotel, Cincinnati, Sept. 22-25. Dr. C. Allen Good, Mayo Clinic, Rochester, Minn., Secretary.

AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS, The Palmer House, Chicago, Sept. 7-11. Mr. Claude E. Wells, 2052 N. Orleans, Chicago 14, Executive Secretary.

CENTRAL ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS, Drake Hotel, Chicago, Sept. 24-26. Dr. Edwin J. DeCosta, 104 S. Michigan Ave., Chicago 3, Secretary.

COLLEGE OF AMERICAN PATHOLOGISTS, The Palmer House, Chicago, Sept. 6. Dr. Arthur H. Dearing, Suite 2115, Prudential Plaza, Chicago 1, Executive Director.

COLORADO STATE MEDICAL SOCIETY, Brown Palace and Shirley Savoy Hotels, Denver, Sept. 8-11. Mr. Harvey T. Sethman, 835 Republic Bldg., Denver 2, Executive Secretary.

INTERNATIONAL COLLEGE OF SURGEONS, TENNESSEE SECTION, Chattanooga, Sept. 28-29. Dr. William G. Stephenson, Medical Arts Bldg., Chattanooga, Tenn., Regent.

KENTUCKY STATE MEDICAL ASSOCIATION, Columbia Auditorium, Louisville, Sept. 22-24. Mr. Joseph P. Sanford, 1169 Eastern Pkwy., Louisville 17, Ky., Executive Secretary.

MARYLAND, MEDICAL AND CHIRURGICAL FACULTY OF THE STATE OF, Semiannual Meeting, Ocean City, Sept. 18. Mr. John Sargeant, 1211 Cathedral St., Baltimore 1, Executive Secretary.

MEDICAL PROGRESS ASSEMBLY, Tutwiler Hotel, Birmingham, Ala., Sept. 13-15. Dr. Herbert H. Thomas, 920 S. 19th St., Birmingham, Ala., Chairman, Publicity Committee.

MICHIGAN STATE MEDICAL SOCIETY, Pantlind Hotel, Grand Rapids, Sept. 28-29, Oct. 1-3. Mr. William J. Burns, 606 Townsend St., Lansing 15, Mich., Executive Secretary.

MID-CONTINENT PSYCHIATRIC ASSOCIATION, Holiday Inn Motor Hotel, St. Louis County, Mo., Sept. 18-20. Dr. W. Payton Kolb, Baptist Medical Arts Bldg., Little Rock, Ark., Secretary.

MONTANA MEDICAL ASSOCIATION, Finlen Hotel, Butte, Sept. 17-19. Mr. L. Russell Hegland, 1236 N. 28th St., Billings, Mont., Executive Secretary.

NATIONAL RECREATION CONGRESS, Morrison Hotel, Chicago, Sept. 28-Oct. 2. Mr. Jesse Reynolds, Department of Recreation and Parks, The Mosque, Laurel and Main Streets, Richmond 20, Va., Chairman.

NORTH AMERICAN FEDERATION, INTERNATIONAL COLLEGE OF SURGEONS, Chicago, Sept. 13-17. For information write the Secretariat, 1516 Lake Shore Dr., Chicago 10.

OREGON STATE MEDICAL SOCIETY, Medford Hotel, Medford, Sept. 23-25. Mr. Roscoe K. Miller, 1115 S. W. Taylor St., Portland 5, Ore., Executive Secretary.

UNITED STATES SECTION, INTERNATIONAL COLLEGE OF SURGEONS, Palmer House, Chicago, Sept. 13-17. Dr. Ross T. McIntyre, 1516 Lake Shore Dr., Chicago 10, Executive Secretary.

UTAH STATE MEDICAL ASSOCIATION, Hotel Utah Motor Lodge, Salt Lake City, Sept. 16-18. Mr. Harold Bowman, 42 S. 5th East, Salt Lake City 2, Executive Secretary.

WASHINGTON STATE MEDICAL ASSOCIATION, Olympic Hotel, Seattle, Sept. 13-16. Mr. Ralph W. Neill, 1309 Seventh Ave., Seattle 1, Executive Secretary.

WORLD MEDICAL ASSOCIATION, Montreal, Canada, Sept. 7-12. Dr. Louis H. Bauer, 10 Columbus Circle, New York 19, Secretary-General.

(Continued on page 34)

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1. Eisfelder, H.W.: Case history 18/35. Personal communication. 2. Fuller, H.L. and Kassel, L.E.: Antibiotic Med. & Clin. Therapy, 3:322, 1956.

October

ACADEMY OF PSYCHOSOMATIC MEDICINE, Sheraton-Cleveland Hotel, Cleveland, Oct. 15-17. For information write: Dr. Bertram B. Moss, Suite 1035, 55 E. Washington St., Chicago 2, Secretary.

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY, The Palmer House, Chicago, Oct. 11-16. Dr. William L. Benedict, 15 Second St., S. W., Rochester, Minn., Executive Secretary.

AMERICAN ACADEMY OF PEDIATRICS, The Palmer House, Chicago, Oct. 5-8. Dr. E. H. Christopherson, 1801 Hinman Ave., Evanston, Ill., Executive Secretary.

AMERICAN ASSOCIATION OF MEDICAL RECORD LIBRARIANS, Radisson Hotel, Minneapolis, Oct. 12-15. Miss Margaret G. Scully, 510 N. Dearborn St., Chicago 10, Director.

AMERICAN COLLEGE OF CHEST PHYSICIANS, 25th Anniversary Homecoming Meeting, Albuquerque, N. M., Oct. 14-17. Mr. Murray Kornfeld, 112 E. Chestnut St., Chicago 11, Executive Director.

AMERICAN COLLEGE OF PREVENTIVE MEDICINE, Hotel Ambassador, Atlantic City, N. J., Oct. 21-22. Dr. John J. Wright, P. O. Box 1267, Chapel Hill, N. C., Secretary-Treasurer.

AMERICAN HEART ASSOCIATION, Trade and Convention Center, Philadelphia, Oct. 23-27. Mr. William F. McGlone, 44 E. 23rd St., New York 10, Secretary.

AMERICAN MEDICAL WRITERS' ASSOCIATION, St. Louis, Oct. 2-3. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

AMERICAN OTORHINOLOGIC SOCIETY FOR PLASTIC SURGERY, INC., Conrad Hilton Hotel, Chicago, Oct. 11. Dr. Joseph G. Gilbert, 75 Barberry Lane, Roslyn Heights, N. Y., Secretary.

AMERICAN PSYCHIATRIC ASSOCIATION, Detroit Divisional Meeting, Hotel Statler, Detroit, Oct. 29-31. Dr. Benjamin Jeffries, 16321 Mack Ave., Detroit 24, Co-Chairman, Planning Committee.

AMERICAN PUBLIC HEALTH ASSOCIATION, Convention Hall, Atlantic City, N. J., Oct. 19-23. Dr. Berwyn F. Mattison, 1790 Broadway, New York 19, N. Y., Executive Director.

AMERICAN SCHOOL HEALTH ASSOCIATION, Claridge Hotel, Atlantic City, N. J., Oct. 18-23. Dr. A. O. DeWeese, 515 E. Main St., Kent, Ohio, Executive Secretary.

AMERICAN SOCIETY OF ANESTHESIOLOGISTS, INC., Americana Hotel, Bal Harbor, Fla., Oct. 5-9. Mr. John W. Andes, 188 W. Randolph St., Room 1101, Chicago 1, Executive Secretary.

AMERICAN SOCIETY OF FACIAL PLASTIC SURGERY, Chicago, Oct. 15-17. Dr. Samuel M. Bloom, 123 E. 83rd St., New York 28, Secretary.

AMERICAN SOCIETY OF PLASTIC AND RECONSTRUCTIVE SURGERY, Hotel Fountainebleau, Miami Beach., Fla., Oct. 18-23. Dr. Thomas Ray Broadbent, 508 E. South Temple, Salt Lake City, General Secretary.

AMERICAN SOCIETY OF TROPICAL MEDICINE AND HYGIENE, Claypool Hotel, Indianapolis, Oct. 28-31. Dr. Rolla B. Hill, 3575 St. Gaudens Road, Miami 33, Fla., Executive Secretary.

ASSOCIATION OF LIFE INSURANCE MEDICAL DIRECTORS OF AMERICA, Hotel Statler Hilton, New York City, Oct. 21-23. Dr. Royal S. Schaaf, Prudential Insurance Co., P. O. Box 594, Newark 1, N. J., Secretary.

ASSOCIATION OF MEDICAL ILLUSTRATORS, Seattle, Oct. 5-7. Miss Rose M. Reynolds, University of Nebraska College of Medicine, 42nd Dewey Ave., Omaha 5, Corresponding Secretary.

CENTRAL NEUROPSYCHIATRIC ASSOCIATION, Hotel Roosevelt, New Orleans, Oct. 16-17. Dr. Ralph M. Patterson, Columbus Psychiatric Institute, 473 W. 12th Ave., Columbus 10, Ohio.

CONGRESS OF NEUROLOGICAL SURGEONS, Americana Hotel, Miami, Fla., Oct. 28-31. Dr. Richard L. DeSaussure, Suite 101 B, 20 S. Dudley St., Memphis, Tenn., Secretary-Treasurer.

DELAWARE, MEDICAL SOCIETY OF, Oct. 14-15. Mr. Lawrence J. Morris Jr., 621 Delaware Ave., Wilmington 1, Del.

INDIANA STATE MEDICAL ASSOCIATION, Murat Temple, Indianapolis, Oct. 6-9. Mr. James A. Waggener, 1021 Hume Mansur Bldg., Indianapolis 4, Executive Secretary.

NEW HAMPSHIRE MEDICAL SOCIETY, Equinox House, Manchester, Vt., Oct. 1-4. Mr. Hamilton S. Putnam, 18 School St., Concord, N. H., Executive Secretary.

PENNSYLVANIA, MEDICAL SOCIETY OF THE STATE OF, Penn Sheraton Hotel, Pittsburgh, Oct. 18-23. Mr. Lester H. Perry, 230 State St., Harrisburg, Pa., Executive Director.

VERMONT STATE MEDICAL SOCIETY, Equinox House, Manchester, Oct. 1-4. Mr. Getty Page, 128 Merchants Row, Rutland, Vt., Executive Secretary.

VIRGINIA, MEDICAL SOCIETY OF, Hotel Roanoke, Roanoke, Oct. 4-5. Mr. Robert I. Howard, 4205 Dover Rd., Richmond 21, Va.

WESTERN INDUSTRIAL MEDICAL ASSOCIATION, INC., Statler Hotel, Los Angeles, Oct. 2-3. Dr. A. C. Remington, 9851 Sepulveda Blvd., Los Angeles 45, Secretary.

WESTERN ORTHOPEDIC ASSOCIATION, Brown Palace Hotel, Denver, Oct. 18-22. Vi Mathiesen, 354 21st St., Oakland 12, Calif., Executive Secretary.

November

AMERICAN ASSOCIATION OF BLOOD BANKS, Edgewater Beach Hotel, Chicago, Nov. 4-7. Dr. John B. Alsever, Southwest Blood Banks, 1211 W. Washington St., Phoenix, Ariz., Secretary.

AMERICAN CLINICAL AND CLIMATOLOGICAL ASSOCIATION, The Homestead, Hot Springs, Va., Nov. 2-4. Dr. F. Tremaint Billings, 420 Medical Arts Bldg., Nashville, Tenn., Secretary.

AMERICAN FRACTURE ASSOCIATION, Roosevelt Hotel, New Orleans, Nov. 1-5. Dr. H. W. Wellmerling, 610 Griesheim Bldg., Bloomington, Ill., Executive Secretary.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES, Edgewater Beach Hotel, Chicago, Nov. 2-4. Dr. Ward Darley, 2530 Ridge Ave., Evanston, Ill., Executive Director.

ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES, Mayflower Hotel, Washington, D. C., Nov. 8-11. Lt. Col. George M. Beam, AUS, Ret., Suite 718, New Medical Bldg., 1726 Eye St., N. W., Washington 6, D. C., Executive Secretary.

CENTRAL SOCIETY FOR CLINICAL RESEARCH, Drake Hotel, Chicago, Nov. 6-7. Dr. Austin S. Weisberger, 2065 Adelbert Rd., Cleveland 6, Secretary.

CONFERENCE ON ELECTRICAL TECHNIQUES IN MEDICINE AND BIOLOGY, Sheraton Hotel, Philadelphia, Nov. 10-12. Dr. Herman P. Schwan, Moore School of Electrical Engineering, University of Pennsylvania, Philadelphia, Chairman.

DISTRICT OF COLUMBIA, MEDICAL SOCIETY OF, Statler-Hilton Hotel, Washington, D. C., Nov. Mr. Theodore Wiprud, 1718 M Street, N. W., Washington 6, D. C.

GASTROENTEROLOGY RESEARCH GROUP, Drake Hotel, Chicago, Nov. 6. For information write Dr. Charles F. Code, Mayo Clinic, Rochester, Minn.

GERONTOLOGICAL SOCIETY, INC., Statler Hotel, Detroit, Nov. 12-14. Mrs. Marjorie Adler, 660 S. Kingshighway Blvd., St. Louis 10, Administrative Secretary.

INTERSTATE POSTGRADUATE MEDICAL ASSOCIATION OF NORTH AMERICA, The Palmer House, Chicago, Nov. 2-5. Mr. Roy T. Ragatz, Box 1109, Madison 1, Wis., Executive Secretary.

NATIONAL PROCTOLOGIC ASSOCIATION, Chicago, Nov. Dr. George E. Mueller, 39 E. Madison, Chicago 2, Secretary.

NATIONAL SOCIETY FOR CRIPPLED CHILDREN AND ADULTS, Palmer House, Chicago, Nov. 29-Dec. 2. Dr. Dean W. Roberts, 2023 W. Ogden Ave., Chicago 12, Executive Director.

OMAHA MID-WEST CLINICAL SOCIETY, Civic Auditorium, Omaha, Nov. 2-5. Mrs. Reta M. Crowell, 1031 Medical Arts Bldg., Omaha 2, Executive Secretary.

PUERTO RICO MEDICAL ASSOCIATION, Santurce, Nov. 22-26. Mr. J. A. Sanchez, Box 9111, Santurce 29, Puerto Rico, Executive Secretary.

RADIOLOGICAL SOCIETY OF NORTH AMERICA, INC., Palmer House, Chicago, Nov. 15-20. Dr. Donald S. Childs, 713 E. Genesee St., Syracuse 2, N. Y., Secretary-Treasurer.

SOCIETY FOR THE SCIENTIFIC STUDY OF SEX, Barbizon Plaza Hotel, New York City, Nov. 7. Mr. Robert V. Sherwin, Suite 704, 1 E. 42nd St., New York 17, Executive Secretary.

SOUTHERN MEDICAL ASSOCIATION, Atlanta, Nov. 16-19. Mr. V. O. Foster, 2601 Highland Ave., Birmingham 5, Ala., Executive Secretary-Treasurer.

WESTERN SURGICAL ASSOCIATION, The Broadmoor, Colorado Springs, Colo., Nov. 19-21. Dr. John T. Reynolds, 612 N. Michigan Ave., Chicago 11, Secretary.

December

NEW YORK HEART ASSOCIATION, Symposium on Salt and Water Metabolism, Biltmore Hotel, New York City, Dec. 11-12. Dr. Alfred P. Fishman, N. Y. Heart Association, 10 Columbus Circle, New York City, Chairman.

1960

January

AMERICAN ACADEMY OF ALLERGY, Hollywood Beach Hotel, Hollywood-by-the-Sea, Fla., Jan. 11-13. Mr. James O. Kelley, 756 N. Milwaukee St., Milwaukee 2, Wis., Executive Secretary.

AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS, The Palmer House, Chicago, Jan. 23-28. Mr. John K. Hart, 116 S. Michigan, Chicago 3, Executive Secretary.

NORTHWEST SOCIETY FOR CLINICAL RESEARCH, Seattle, Jan. 9. Dr. John R. Hogness, 721 Minor Ave., Seattle 4, Secretary-Treasurer.

February

AMERICAN ACADEMY OF OCCUPATIONAL MEDICINE, Williamsburg Inn, Williamsburg, Va., Feb. 10-12. Capt. Lloyd B. Shone, Bureau of Medicine and Surgery, Navy Dept., Washington 25, D. C., Secretary.

AMERICAN COLLEGE OF ALLERGISTS, INC., Americana Hotel, Bal Harbour, Miami Beach, Fla., Feb. 28-Mar. 5. Mr. Eloi Bauers, 2160 Rand Tower, Minneapolis 2, Executive Vice-President.

AMERICAN COLLEGE OF RADIOLOGY, Roosevelt Hotel, New Orleans, Feb. 3-6. Mr. William C. Stronach, 20 N. Wacker Dr., Chicago 6, Executive Director.

CENTRAL SURGICAL ASSOCIATION, Drake Hotel, Chicago, Feb. 18-20. Dr. Angus D. McLachlin, Victoria Hospital, London, Ont., Canada, Secretary.

SOCIETY OF UNIVERSITY SURGEONS, Minneapolis, Feb. 11-13. Dr. Ben Eiseman, 4200 E. Ninth Ave., Denver 20, Secretary.

March

AMERICAN BRONCHO-ESOPHAGOLOGICAL ASSOCIATION, Deauville Hotel, Miami Beach, Fla., Mar. 15-16. Dr. F. Johnson Putney, 1712 Locust St., Philadelphia 3, Secretary.

AMERICAN LARYNGOLOGICAL ASSOCIATION, Deauville Hotel, Miami Beach, Fla., Mar. 18-19. Dr. Lyman Richards, Massachusetts Institute of Technology, Cambridge 39, Mass., Secretary.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY, INC., Deauville Hotel, Miami Beach, Fla., Mar. 15-17. Dr. C. Stewart Nash, 708 Medical Arts Bldg., Rochester 7, N. Y., Secretary.

AMERICAN OTOLOGICAL SOCIETY, Deauville Hotel, Miami Beach, Fla., Mar. 13-14. Dr. Lawrence R. Boies, University Hospital, Minneapolis 14, Minn., Executive Secretary-Treasurer.

AMERICAN OTORHINOLOGIC SOCIETY FOR PLASTIC SURGERY, INC., Deauville Hotel, Miami Beach, Fla., Mar. 6-13. Dr. Joseph G. Gilbert, 75 Barberry Lane, Roslyn Heights, N. Y., Secretary.

AMERICAN RADIUM SOCIETY, Caribe Hilton Hotel, San Juan, Puerto Rico, Mar. 17-19. Dr. Robert L. Brown, Robert Winship Clinic, Emory University, Atlanta 22, Ga., Secretary.

CALIFORNIA MEDICAL ASSOCIATION, Hotel Ambassador, Los Angeles, Mar. 13-16. Mr. John Hunton, 450 Sutter St., San Francisco 8, Executive Secretary.

NATIONAL HEALTH COUNCIL, NATIONAL HEALTH FORUM, Miami, Fla., Mar. 13-18. Mr. Philip E. Ryan, 1790 Broadway, New York 19, Executive Director.

NATIONAL MULTIPLE SCLEROSIS SOCIETY, New York City, Mar. 8. Mr. Donald Vail, 257 Fourth Ave., New York 10, Secretary.

(Continued on page 36)

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NEUROSURGICAL SOCIETY OF AMERICA, Del Monte Lodge, Calif., Mar. 30-Apr. 2. Dr. Raymond K. Thompson, 803 Cathedral St., Baltimore 1, Secretary.

SOUTHEASTERN SURGICAL CONGRESS, Roosevelt Hotel, New Orleans, Mar. 21-24. Dr. B. T. Beasley, 1032 Hurt Bldg., Atlanta 3, Ga., Executive Secretary.

SOUTHWESTERN SURGICAL CONGRESS, Riviera Hotel, Las Vegas, Nev., Mar. 28-31. Miss Mary O'Leary, 1213 Medical Arts Bldg., Oklahoma City, Okla., Executive Secretary.

April

ALABAMA, MEDICAL ASSOCIATION OF THE STATE OF, Admiral Semmes Hotel, Mobile, Apr. 21-23. Mr. W. A. Dozier Jr., 19 S. Jackson St., Montgomery 4, Executive Secretary.

AMERICAN ASSOCIATION OF ANATOMISTS, Statler-Hilton, New York City, Apr. 11-16. Dr. Louis B. Flexner, Dept. of Anatomy, School of Medicine, Univ. of Pa., Philadelphia 4, Secretary-Treasurer.

AMERICAN ASSOCIATION OF IMMUNOLOGISTS, Chicago, Apr. 11-15. Dr. Calderon Howe, Columbia Univ. College of Physicians and Surgeons, New York 22, Secretary-Treasurer.

AMERICAN ASSOCIATION OF RAILWAY SURGEONS, Drake Hotel, Chicago, Apr. 7-9. Mr. Chester C. Guy, 5800 Stony Island Ave., Chicago 37, Executive Secretary.

AMERICAN COLLEGE OF OBSTETRICIANS AND GYNECOLOGISTS, Netherland Hilton Hotel, Cincinnati, Apr. 3-6. Mr. Donald F. Richardson, P. O. Box 749, Chicago 90, Executive Secretary.

AMERICAN GASTROENTEROLOGICAL ASSOCIATION, Roosevelt Hotel, New Orleans, April 1-2. Dr. Franz J. Ingelfinger, 65 E. Newton St., Boston 18, Secretary.

AMERICAN PHYSIOLOGICAL SOCIETY, Chicago, Apr. 11-15. Ray G. Daggs, D.Sc., 9650 Wisconsin Ave., Washington 14, D. C., Executive Secretary.

AMERICAN SOCIETY OF BIOLOGICAL CHEMISTS, INC., Chicago, Apr. 11-16. Dr. Frank W. Putnam, Dept. of Biochemistry, Univ. of Florida, Gainesville, Secretary.

AMERICAN SOCIETY FOR PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS, INC., Chicago, April. Dr. Karl H. Beyer Jr., Merck Sharp and Dohme Research Labs., West Point, Pa., Secretary.

AMERICAN SOCIETY FOR THE STUDY OF STERILITY, Sheraton-Gibson Hotel, Cincinnati, Apr. 1-3. Dr. Herbert H. Thomas, 920 S. 19th St., Birmingham 5, Ala., Executive Secretary.

AMERICAN SURGICAL ASSOCIATION, The Greenbrier, White Sulphur Springs, W. Va., Apr. 3-6. Dr. W. A. Altemeier, Cincinnati General Hospital, Cincinnati 29, Secretary.

ARKANSAS MEDICAL SOCIETY, Pine Bluff, Apr. 18-20. Mr. Paul C. Schaefer, 218 Kelley Bldg., Fort Smith, Ark., Executive Secretary.

MARYLAND, MEDICAL AND CHIRURGICAL FACULTY OF THE STATE OF, The Alcazar, Baltimore, Apr. 20-22. Mr. John Sargeant, 1211 Cathedral St., Baltimore 1, Executive Secretary.

TENNESSEE STATE MEDICAL ASSOCIATION, The Maxwell House, Nashville, Apr. 10-13. Mr. Jack E. Ballentine, 112 Louise Ave., Nashville 5, Tenn., Executive Director.

May

AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS, Dearborn Inn, Dearborn, Mich., May 11-13. Dr. William J. Engel, 2020 E. 93rd St., Cleveland 6, Secretary.

OHIO STATE MEDICAL ASSOCIATION, Sheraton Cleveland, Cleveland, week of May 15. Mr. Charles S. Nelson, 79 E. State St., Columbus 15, Executive Secretary.

INTERNATIONAL AND FOREIGN

1959

May

CONFERENCE ON INTERNATIONAL UNION FOR HEALTH EDUCATION OF THE PUBLIC, Dusseldorf, Germany, May 2-9. For information address: Secretary-General, 92, rue St. Denis, Paris 1, France.

CONGRESS OF THE INTERNATIONAL ASSOCIATION FOR THE STUDY OF BRONCHI, Madrid, May 29-30. Prof. Jose Abello, Lagasca 13, Madrid, Spain, Secretary-General.

INTERNATIONAL CONGRESS OF ACUPUNCTURE, Paris, France, May 9-11. For information address: 8 avenue Franklin Roosevelt, Paris 8e, France.

INTERNATIONAL CONGRESS OF INFECTIOUS PATHOLOGY (SECOND), Milan, Italy, May 6-10. Prof. Carlo Zanussi, Via Francesco Sforza, 35-(Istituto di Igiene dell'Università)-Milano, Italy, General Secretary.

INTERNATIONAL CONGRESS ON IRRADIATION OF ENDOCRINE ORGANS, Amsterdam, May 30-June 1. For information, write: Dr. Johanna M. van Went, Banstraat 30 hoek de Lairessestraat, Amsterdam Z I, Nederland.

INTERNATIONAL HOSPITAL EQUIPMENT & MEDICAL SERVICE EXHIBITION (SECOND), Empire Hall, London, May 25-30. Mr. W. R. Kern, 40 Gerrard St., Piccadilly, London, W. 1, England, Organizer and Director.

INTERNATIONAL VETERINARY CONGRESS, Madrid, Spain, May 21-27. Dr. Jac Jensen, Belstraat 168, Utrecht, Netherlands, General Secretary.

MIDDLE EAST MEDICAL ASSEMBLY, American University of Beirut, Lebanon, May 8-10. Dr. Calvin H. Plimpton, American University of Beirut, Beirut, Lebanon, Chairman.

WORLD HEALTH ASSEMBLY, Geneva, May 12 (three weeks). For information write: World Health Organization, Palais des Nations, Geneva, Switzerland.

June

CANADIAN ASSOCIATION OF PHYSICAL MEDICINE AND REHABILITATION (7TH ANNUAL MEETING), Lord Nelson Hotel, Halifax, N. S., June 4-6. Dr. M. Mongeau, 6265 Hudson Rd., Montreal 26, Que., Secretary.

CANADIAN FEDERATION OF BIOLOGICAL SOCIETIES (CANADIAN PHYSIOLOGICAL SOCIETY, PHARMACOLOGICAL SOCIETY OF CANADA, CANADIAN ASSOCIATION OF ANATOMISTS, CANADIAN BIOCHEMICAL SOCIETY), University of Toronto, Toronto, Ont., Canada, June 9-11. Dr. E. H. Bensley, Room 710, The Montreal General Hospital, Montreal 25, Que.

CANADIAN PUBLIC HEALTH ASSOCIATION (JUBILEE MEETING), Sheraton Mount Royal Hotel, Montreal, Que., June 1-3, Dr. G. W. O. Moss, 150 College St., Toronto 5, Ont., Honorary Secretary.

CONGRESS AND INTERNATIONAL EXHIBIT OF TECHNICIANS OF HEALTH, Parc des Expositions, Porte de Versailles, Paris, France, June 9-12. For information write the Secretariat of the Congress, 37, rue de Montholon, Paris 9e, France.

INTERNATIONAL CONFERENCE ON MEDICAL ELECTRONICS, UNESCO Bldg., Paris, June 24-27. Dr. F. Brackett, National Institutes of Health, Bethesda 14, Md., Regional Program Representative.

INTERNATIONAL FERTILITY ASSOCIATION, Amsterdam, Netherlands, June 7-13. For information address: Dr. B. S. ten Berge, Women's Hospital, Groningen, Netherlands.

INTERNATIONAL HOSPITAL CONGRESS, Edinburgh, Scotland, June 1-6. Capt. J. E. Stone, 34 King St., London, E. C. 2, England, Secretary-General.

IRISH MEDICAL ASSOCIATION, Killarney, June 29-July 3. Dr. Noel Reilly, 10, Fitzwilliam Place, Dublin, Ireland, Medical Secretary.

PAN-AMERICAN CONGRESS ON RHEUMATIC DISEASES, Washington, D. C., U. S. A., June 2-6. Dr. Richard T. Smith, West Point, Pa., U. S. A., Secretary-General.

July

BRITISH MEDICAL ASSOCIATION, Edinburgh, Scotland, July 18-24. For information address: The Secretary, British Medical Association, Tavistock Square, London, W. C. 1, England.

CANADIAN MEDICAL ASSOCIATION, Edinburgh, Scotland, July 18-24. Dr. A. D. Kelly, 150 St. George St., Toronto 5, Ont., General Secretary.

INTERNATIONAL CONGRESS OF PEDIATRICS, Montreal, Que., July 19-25. For information address: Dr. R. L. Denton, 2300 Tupper St., Montreal 25, Que.

INTERNATIONAL CONGRESS OF PLASTIC SURGERY, London, England, July 13-17. Mr. David Matthews, 152 Harley St., London, W. 1, England.

INTERNATIONAL CONGRESS OF RADIOLOGY, Munich, Germany, July 23-30. For information write: Sekretariat, des 9, Internationalen Kongresses für Radiologie, Reitmorstrasse 29, Munich 22, Germany.

INTERNATIONAL CONGRESS OF SCHOOL AND UNIVERSITY HEALTH (THIRD), Paris, France, July 6-8. For information write: Comite d'Organisation du Congres d'Hygiene Scolaire et Universitaire, 13, rue du Four, Paris 6e, France.

INTERNATIONAL MEDICAL CONFERENCE ON MENTAL RETARDATION (FIRST), Eastland Hotel, Portland, Maine, July 27-31. Dr. Ella Langer, State House, Augusta, Me., Chairman, Committee on Finance and Arrangements.

INTERNATIONAL PSYCHOANALYTICAL ASSOCIATION, Copenhagen, Denmark, July 26-30. Miss Pearl King, 37 Albion St., London, W. 2, England, Secretary-General.

INTERNATIONAL UNION OF THE MEDICAL PRESS (4TH CONGRESS), Cologne, Germany, July 3-5. Dr. Stockhausen, Brabanterstr. 13, Cologne, Germany, Secretary-General.

SHAIO FOUNDATION SYMPOSIUM ON CARDIOVASCULAR DISEASES, Hotel Tequendama, Bogota, Colombia, July 27-31. Dr. Alberto Vejarano, Fundacion A. Shaio, Clinica: Carretera de Suba, Bogota, Colombia.

August

INTERNATIONAL ASSOCIATION OF LIMNOLOGY, Vienna & Salzburg, Austria, Aug. 20-Sept. 8. For information address: Secretary, Biologische Station, Lunz am See, Austria.

INTERNATIONAL CONGRESS FOR THE HISTORY OF SCIENCE, Barcelona & Madrid, Spain, Aug. 30-Sept. 6. Prof. J. Vernet, Universidad de Barcelona, Barcelona, Spain, Secretary-General.

INTERNATIONAL CONGRESS OF PHYSIOLOGICAL SCIENCES, Buenos Aires, Argentina, Aug. 9-15. A. O. M. Stoppani, Facultad de Ciencias Medicas, Paraguay 2151, Buenos Aires, Argentina.

INTERNATIONAL CONGRESS FOR SPEECH AND VOICE THERAPY, London, England, Aug. 17-22. Miss M. Carter, 46 Cannonbury Square, London, N. 1, England, Secretary.

PAN-AMERICAN CONGRESS OF VETERINARY MEDICINE, Kansas City, Mo., U. S. A., Aug. 23. Dr. Benjamin D. Blood, P. O. Box 99, Azul, Buenos Aires Province, Argentina, Secretary-General.

WORLD CONFERENCE ON MEDICAL EDUCATION, Palmer House, Chicago, Ill., U. S. A., Aug. 30-Sept. 4. For information address: Dr. Louis H. Bauer, 10 Columbus Circle, New York 19, N. Y., U. S. A.

WORLD FEDERATION FOR MENTAL HEALTH, Barcelona, Spain, Aug. 30-Sept. 5. Miss Esther M. Thornton, 19 Manchester St., London, W. 1, England, Secretary-General.

September

CONGRESS OF INTERNATIONAL UNION OF RAILWAY MEDICAL SERVICES, Lucerne, Switzerland, Sept. 21-24. Dr. J. Ortega, 13, rue de Chateau-London, Paris 10, France, Secretary-General.

EUROPEAN CONGRESS OF ALLERGY, London, England, Sept. 2-4. For information address: British Association of Allergists, Write-Fleming Institute, St. Mary's Hospital, London, W. 2, England.

EUROPEAN CONGRESS OF RHEUMATISM, Istanbul, Turkey, Sept. 18-21. For Information address: Professor Hami Kocas, Medical School, Ankara, Turkey.

EUROPEAN SOCIETY OF HAEMATOLOGY (SEVENTH CONGRESS), Bedford College, London, Sept. 7-12. For information write: Dr. E. Neumark, Department of Pathology, St. Mary's Hospital, London, W. 2.

INTERNATIONAL CARDIOVASCULAR SOCIETY, Munich, Germany, Sept. 18-20. Dr. Henry Haimovici, 715 Park Ave., New York 21, Secretary-General.

(Continued on page 40)

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REFERENCES: 1. Seidner, H. M.: Illinois M. J. 109:20, 1956. 2. Weil, L. L.: J. Florida Acad. Gen. Practice 4:9, No. 3, 1954. 3. Moyer, J. H.: M. Clin. North America, March, 1957, p. 405. 4. Kinney, J. J.: J. M. Soc. New Jersey 53:128, 1956. 5. McClure, C. C.: Personal communication. 6. Charles, C. M.: Geriatrics 11:110, 1956.

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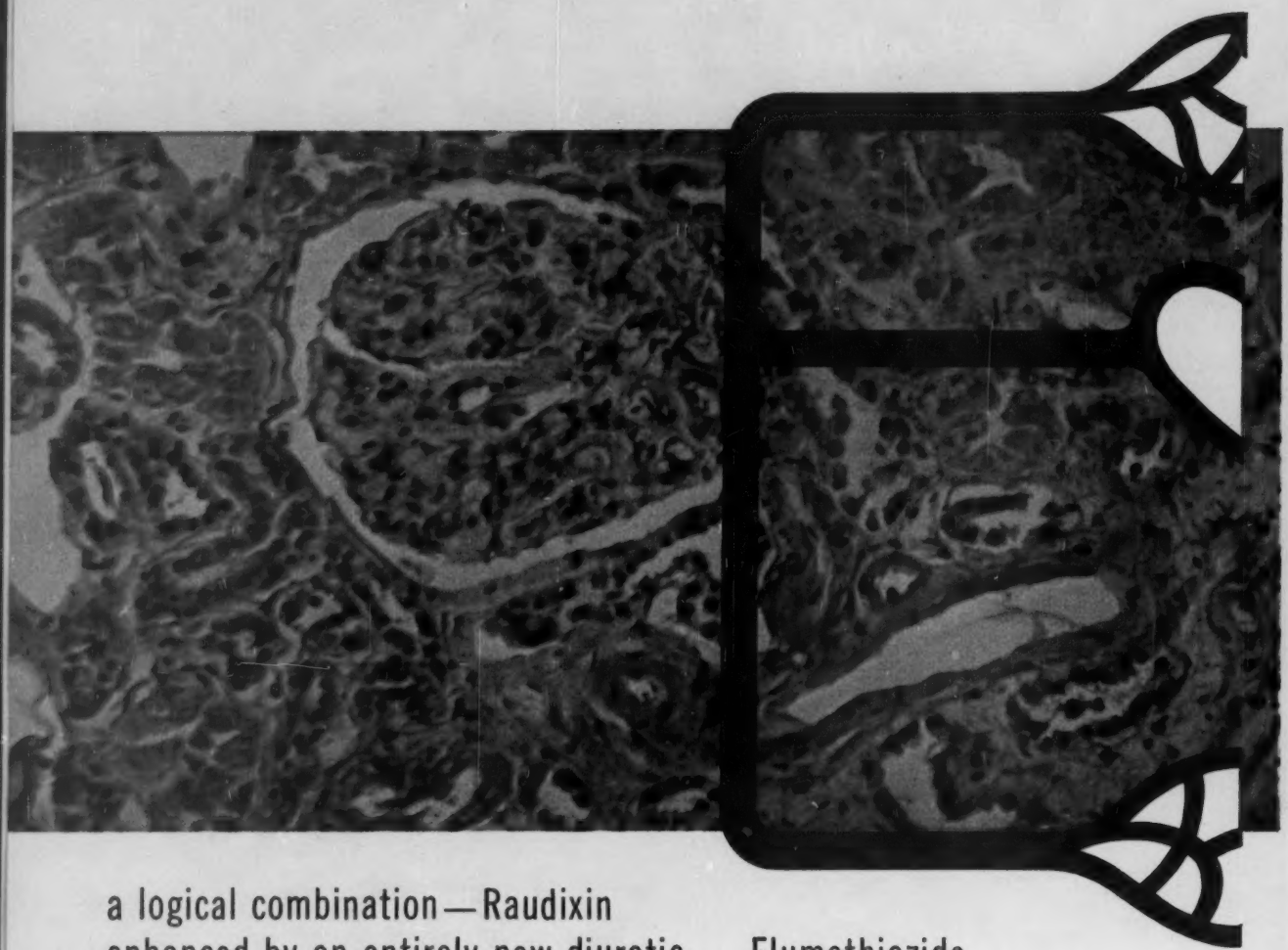

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References: 1. Moyer, J.H., and others: Am. J. Cardiol. *3*:113 (Jan.) 1959. • 2. Bodi, T., and others: To be published, Am. J. Cardiol. (April) 1959. • 3. Fuchs, M., and others: Monographs on Therapy *4*:43 (April) 1959. • 4. Montero, A.C.; Rochelle, J.B., III, and Ford, R.V.: To be published. • 5. Rochelle, J.B., III; Montero, A.C., and Ford, R.V.: To be published.

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International Congress of Air Pollution, New York City, Sept. 9-10. For information write: American Society for Mechanical Engineers, 29 W. 39th St., New York 18.

International Congress of Cancer Cytology, Madrid, Spain, Sept. 21-Oct. 3. For information write: Mrs. E. L. Maselli, P. O. Box 633, Coral Gables, Fla.

International Congress of Nephrology, Geneva, Switzerland, and Evian, France, Sept. 3-5. For information write: Dr. G. Richet, Hospital Necker, 149 rue de Sevres, Paris 7e, France.

International League Against Rheumatism, Istanbul, Turkey, Sept. 18-21. For information write: Prof. Hami Kocas, Medical School, Ankara, Turkey.

International Symposium on Anti-Infectious and Antimitotic Chemotherapy, Geneva, Switzerland, Sept. 12-13. For information write Dr. P. Rentchnick, Case Stand 471, Geneva, Switzerland.

International Tuberculosis Conference, Istanbul, Turkey, Sept. 11-18. Dr. T. I. Gokce, Selime Hatun, Mezarlik Sokak, Taksim, Istanbul, Turkey, Secretary-General.

International Union of the Medical Press, Cologne, Germany, Sept. 21-24. Dr. Stockhausen, Secretary of Bundesaerztekammer, Cologne, Germany.

World Congress for Physical Therapy, Paris, France, Sept. 6-12. For information write: Miss M. J. Neilson, Tavistock House, Tavistock Square, London, W. C. 1, England.

World Medical Association, Montreal, Canada, Sept. 7-12. Dr. Louis H. Bauer, 10 Columbus Circle, New York 19, Secretary-General.

October

Congress of the French-Speaking Association of Pediatrics (17th), Montpellier, France, Oct. 12-14. Prof. Jean Captal, 2, Enclos Tissie Sarrus, Montpellier, France, Congress President.

International Congress of Therapeutics, Strasbourg, France, Oct. 19-31. For information write: Professor Fontaine, Doyen de la Faculte de Strasbourg, France, President.

November

Bahamas Medical Conference, British Colonial Hotel, Nassau, Nov. 27-Dec. 17. For information write: Dr. B. L. Frank, P. O. Box 4037, Fort Lauderdale, Fla.

December

Bahamas Surgical Conference, British Colonial Hotel, Nassau, Dec. 28-Jan. 16. For information write: Dr. B. L. Frank, P. O. Box 4037, Fort Lauderdale, Fla.

1960

January

Bahamas Medical Serendipity Conference (Second), British Colonial Hotel, Nassau, Jan. 17-30. For information write: Dr. B. L. Frank, P. O. Box 4037, Fort Lauderdale, Fla.

Pan-American Congress of Ophthalmology, Caracas, Venezuela, Jan. 31-Feb. 7. For information address: Dr. Moacyr, E. Alvaro, 1151 Consolacao, São Paulo, Brazil.

April

Association of National European and Mediterranean Societies of Gastro-Enterology (ASNEMGE), 6th Congress, Leiden, Netherlands, Apr. 20-24. For information write: ASNEMGE, 22, avenue d'Amerique, Anvers, Belgium.

Bahamas Medical Conference, British Colonial Hotel, Nassau, Apr. 1-14. For information write: Dr. B. L. Frank, P. O. Box 4037, Fort Lauderdale, Fla.

May

Asian-Pacific Congress of Cardiology (Second), Melbourne, Australia, May 23-28. Dr. A. E. Doyle, Alfred Hospital, Melbourne, S. 1, Victoria, Australia.

International College of Surgeons, International Congress, Rome, Italy, May 15-18. For information write the Secretariat, 1516 Lake Shore Dr., Chicago 10.

Pan American Medical Association Congress, Mexico City, May 2-11. Dr. Joseph J. Eller, 745 Fifth Ave., New York 22, Director General.

June

Canadian Medical Association, Banff, Alberta, June 13-17. Dr. A. D. Kelly, 150 St. George St., Toronto 5, Ont., General Secretary.

International Congress of Clinical Pathology, Madrid, Spain, June 13-17. Dr. J. Aparicio Garrido, Sandoval 7, Madrid, Spain, Secretary-General.

International Congress of Physio-Pathology of Animal Reproduction and Artificial Insemination, Amsterdam, Netherlands, June 13-17. Dr. J. Edwards, Milk Marketing Board, Thames, Surrey, England, Secretary.

July

International Congress Against Alcoholism, Stockholm, Sweden, July 31-Aug. 5. Dr. Archer Tongue, Case Gare 49, Lausanne, Switzerland, Secretary-General.

International Congress of Endocrinology, Copenhagen, Denmark, July 18-23. For information address: Dr. Henry H. Turner, 1200 N. Walker, Oklahoma City 3, Okla., U. S. A.

International Congress on Goiter, London, England, July 6-8. For information write: Dr. John C. McClintock, 149½ Washington Ave., Albany, N. Y., U. S. A.

International Congress on Occupational Health, Waldorf-Astoria, New York, N. Y., U. S. A., July 25-29. Dr. Leo Wade, 15 West 51st St., New York, N. Y., U. S. A., Chairman.

August

International Congress of Clinical Chemistry, Edinburgh, Scotland, Aug. 14-19. For information address: Dr. S. C. Frazer, Clinical Laboratory, Royal Infirmary, Edinburgh, Scotland.

International Congress on Diseases of the Chest, sponsored by the Council on International Affairs, American College of Chest Physicians, Vienna, Austria, Aug. 28-Sept. 1. Mr. Murray Kornfeld, 112 E. Chestnut St., Chicago 11, Executive Director.

International Congress of Gerontology, San Francisco, Calif., U. S. A., Aug. 7-14. Mr. Louis Kuplan, 722 Capitol Ave., Sacramento, Calif., U. S. A., Executive Secretary.

International Congress of Internal Medicine (Sixth), Basel, Switzerland, Aug. 24-27. For information write the Secretariat, Sixth International Congress for Internal Medicine, 13, Steinentorstre, Basle, Switzerland.

International Congress of Physical Medicine, Washington, D. C., U. S. A., Aug. 21-26. For information write: Dr. W. J. Zeiter, 2020 E. 93rd St., Cleveland, Ohio, U. S. A.

World Congress of the International Society for the Welfare of Cripples, New York, N. Y., U. S. A., Aug. 29-Sept. 2. Mr. Donald V. Wilson, 701 First Ave., New York 17, N. Y., U. S. A., Secretary-General.

MAGAZINE—TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines on medical subjects is published each week only for the information of readers of THE JOURNAL. *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles reported.*

MAGAZINES

Ladies' Home Journal, May, 1959

"Tell Me Doctor . . . ," by Goodrich C. Schauffler, M.D.

In this month's article, Dr. Schauffler describes a case in which a woman's Fallopian tubes had been cut during a previous operation without her consent. In this particular instance, a second operation was performed in which one tube was restored and the woman was again able to bear children.

McCall's, May, 1959

"The Doctor Talks about Infectious Mononucleosis," as reported by Jane Whitbread.

The article discusses symptoms and treatment of this virus disease. Recommendations for the latter include bed rest, regular doses of aspirin, and plenty of liquid.

Reader's Digest, May, 1959

"Man-Made Muscle—New Horizon for the Paralyzed," by Don Murray.

The story tells of the work being done in developing and perfecting rehabilitative devices simulating the action of natural muscles.

"Tell Your Doctor Everything!" by I. Phillips Frohman, M.D., as told to Scott Seegers.

The author strongly recommends that patients tell their physicians any and all symptoms, even the seemingly trivial. He points out that the patient who conceals symptoms is "foolishly substituting his own medical judgment for that of the physician. . . . The very thing that the patient thinks unimportant may be the key to a baffling diagnostic problem."

Redbook, May, 1959

"Are We Overnourished?" by David Landman.

Mr. Landman points to the dangers of over-nutrition and cites laboratory and clinical studies correlating overweight and illness.

"Relax—Your Baby Knows When to Eat!" by Charles D. May, M.D., as told to Ann Usher.

The article offers advice on infant feeding and points out that "Appetite is primarily controlled by the need for calories. It is satisfied whether the calories come from milk or cereal or any other food. You can fill your infant up with a food useful chiefly for energy, or one needed for building muscle and bone, but he will eat only enough of all the foods together to meet his need for calories."

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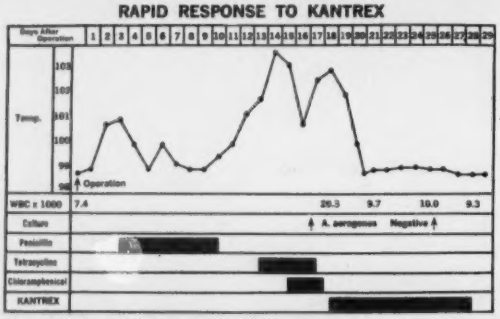

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— Rutenburg, A. M., et al.: Annals N.Y. Acad. Sci. 76:348, 1958.

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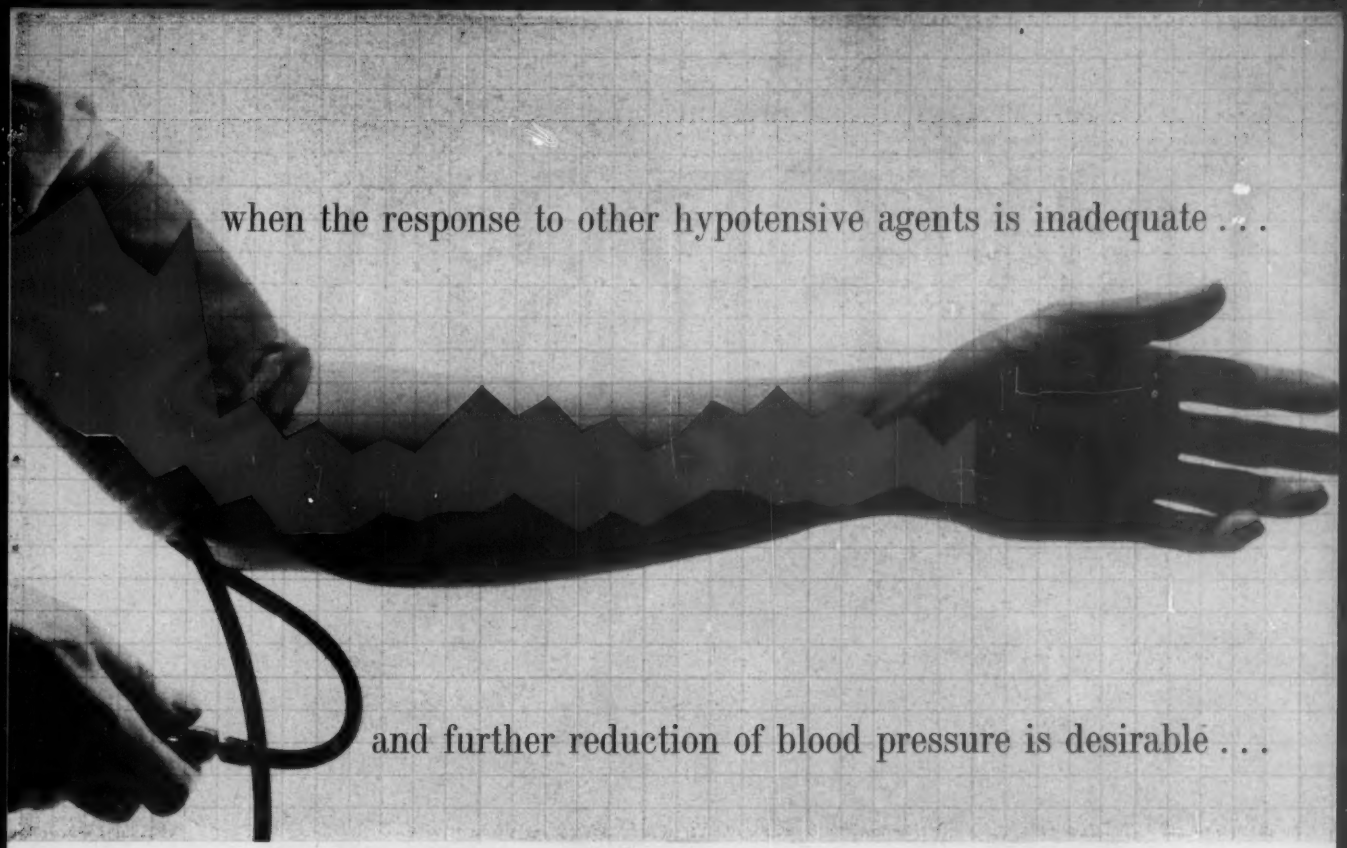

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"unnecessary delay must be avoided in establishing ganglion blockade in severe or malignant hypertension"
Beem, J. R., and Moyer, J. H.: Geriatrics 13:378, June 1958.

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A.M.A. Council on Drugs, New and Nonofficial Drugs: Philadelphia, J. B. Lippincott Co., 1958, p. 285

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"Pretreatment with chlorothiazide ['DIURIL'] and rauwolfia reduces the dosage requirement, augments blood pressure response, and moderates certain of the side effects of ganglion blocking agents. Although such basal therapy is advantageous, unnecessary delay must be avoided in establishing ganglion blockade in severe or malignant hypertension."

Beem, J. R., and Moyer, J. H.: Geriatrics 13:378, June 1958

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1. *Initiate therapy with 'DIURIL'*
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3. *Adjust dosage of all medication*
The patient must be observed frequently and careful adjustment of all agents should be made to determine optimal maintenance dosage.

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SOCIETY	PRESIDENT	EXECUTIVE OFFICER	ANNUAL MEETING
Alabama, Med. Assn. of the State of	W. R. Carter, Repton	Mr. W. A. Dozier Jr., 17 Molton Bldg., Montgomery	Mobile, Apr. 21-23
Alaska State Medical Association	William H. Whitehead, Juneau	Robert B. Wilkins, 1121 Fourth Ave., Anchorage	
Arizona Medical Association	W. R. Manning, Tucson	Leslie B. Smith, 826 Security Bldg., Phoenix	
Arkansas Medical Society	James M. Kolb, Clarksville	Mr. Paul C. Schaefer, 218 Kelley Bldg., Ft. Smith	Pine Bluff, Apr. 18-20
California Medical Association	T. Eric Reynolds, Oakland 9	Mr. John Hunton, 450 Sutter St., San Francisco 8	Los Angeles, Mar. 13-16
Colorado State Medical Society	John I. Zarit, Denver	Mr. H. T. Sethman, 835 Republic Bldg., Denver 2	Denver, Sept. 8-11
Connecticut State Medical Society	Walter I. Russell, New Haven	William R. Richards, 160 St. Ronan St., New Haven	
Delaware, Medical Society of	Alfred R. Shands Jr., Wilmington	N. L. Cannon, 621 Deleware Ave., Wilmington	Oct. 14-15
District of Columbia, Med. Soc. of	W. LeRoy Dunn, Washington 6	Mr. T. Wiprud, 1718 M St. N.W., Washington 6	Washington, D. C., Nov. '59
Florida Medical Association	Jere W. Annis, Lakeland	Mr. William H. Parham, P.O. Box 2411, Jacksonville 1	Miami Beach, May 2-6
Georgia, Medical Association of	Lee Howard, Sr., Savannah	Mr. M. D. Krueger, 875 W. Peachtree St., N.E. Atlanta	Augusta, May 17-20
Hawaii Medical Association	William N. Bergin, Hilo	Satoru Nishijima, 510 S. Beretania St., Honolulu	
Idaho State Medical Association	Donald K. Worden, Lewiston	Mr. Armand L. Bird, 364 Sonna Bldg., Boise	Sun Valley, June 14-17
Illinois State Medical Society	Raleigh C. Oldfield, Oak Park	Harold M. Camp, 224 S. Main St., Monmouth	Chicago, May 19-22
Indiana State Medical Association	Kenneth L. Olson, South Bend	Mr. James A. Waggener, 23 E. Ohio St., Indianapolis 4	Indianapolis, Oct. 6-9
Iowa State Medical Society	Walter D. Abbott, Des Moines 9	Mr. Donald L. Taylor, 529 36th St., Des Moines 12	
Isthmian Canal Zone, Med. Assn. of	Col. Francis Wilson, Ft. Clayton	William T. Bailey, Box 2005, Balboa Heights	
Kansas Medical Society	T. P. Butcher, Emporia	Mr. Oliver E. Ebel, 315 W. Fourth St., Topeka	
Kentucky State Medical Association	R. W. Robertson, Paducah	Mr. J. P. Sanford, 1169 Eastern Pkwy., Louisville 17	Louisville, Sept. 22-24
Louisiana State Medical Society	A. D. Long, Baton Rouge	C. Grenes Cole, 1430 Tulane Ave., New Orleans 12	
Maine Medical Association	Eugene E. O'Donnell, Portland	D. F. Hanley, P.O. Box 240, Brunswick	Rockland, June 21-23
Maryland, Med. and Chir. Faculty of	Leslie E. Daugherty, Cumberland	Mr. John Sargeant, 1211 Cathedral St., Baltimore	Baltimore, Apr. 20-22
Massachusetts Medical Society	Charles C. Lund, Boston 15	Robert W. Buck, 22 The Fenway, Boston 15	Boston, May 19-21
Michigan State Medical Society	G. B. Saltonstall, Charlevoix	Mr. William J. Burns, 606 Townsend, Lansing 15	Grand Rapids, Sept. 28—Oct. 3
Minnesota State Medical Association	B. B. Souster, St. Paul	Mr. H. W. Brunn, 496 Lowry Med. Arts Bldg., St. Paul 2	Duluth, '59
Mississippi State Medical Association	Guy T. Vise, Meridian	Mr. R. B. Kennedy, 735 Riverside Dr., Jackson	Biloxi, May 12-14
Missouri State Medical Association	W. F. Francka, Hannibal	Mr. T. R. O'Brien, 634 N. Grand Blvd., St. Louis 3	
Montana Medical Association	Herbert T. Caraway, Billings	Mr. L. R. Hegland, P.O. Box 1692, Billings	Butte, Sept. 17-19
Nebraska State Medical Association	Fay Smith, Imperial	Mr. M. C. Smith, 1315 Sharp Bldg., Lincoln 8	
Nevada State Medical Association	Roland W. Stahr, Reno	Mr. Nelson B. Neff, P.O. Box 188, Reno	Reno, Aug. 19-22
New Hampshire Medical Society	Clinton R. Mullins, Concord	Mr. Hamilton S. Putnam, 18 School St., Concord	Manchester, Vt., Oct. 1-4
New Jersey, Medical Society of	Kenneth E. Gardner, Bloomfield	Mr. Richard I. Nevin, P.O. Box 904, Trenton 5	
New Mexico Medical Society	James C. Sedgwick, Las Cruces	Mr. R. R. Marshall, 221 W. Central Ave., Albuquerque	
New York, Med. Soc. of the State of	Leo E. Gibson, Syracuse	Herbert T. Wagner, 750 Third Ave., New York 17	
N. Carolina, Med. Soc. of the State of	Lennox D. Baker, Durham	Mr. James T. Barnes, 203 Capitol Club Bldg., Raleigh	
North Dakota State Medical Assn.	O. A. Sedlak, Fargo	Mr. Lyle Limond, Box 1198, Bismarck	
Ohio State Medical Association	Frank H. Mayfield, Cincinnati	Mr. C. S. Nelson, 79 East State St., Columbus 15	Cleveland, wk. of May 15
Oklahoma State Medical Association	E. C. Mohler, Ponca City	Mr. R. H. Graham, P.O. Box 9696, Shartel Station, Okla. City	
Oregon State Medical Society	Herman A. Dickel, Portland	Mr. Roscoe K. Miller, 1020 S. W. Taylor St., Portland	Medford, Sept. 23-25
Pennsylvania, Med. Soc. of State of	John T. Farrell Jr., Philadelphia 3	Mr. Lester H. Perry, 230 State St., Harrisburg	Pittsburgh, Oct. 18-23
Puerto Rico Medical Association	Eugenio Fernandez-Cerra, Hato Rey	M. J. A. Sanchez, Box 9111, Santurce	Santurce, Nov. 22-26
Rhode Island Medical Society	Francis B. Sargent, Providence 6	Thomas Perry Jr., 154 Waterman St., Providence 6	Providence, May 12-13
South Carolina Medical Association	R. L. Crawford, Lancaster	Mr. M. L. Meadors, 309 W Evans St., Florence	Columbia, May 12-14
South Dakota State Medical Assn.	A. A. Lampert, Rapid City	Mr. J. C. Foster, 1st Nat'l Bank Bldg., Sioux Falls	Rapid City, June 20-23
Tennessee State Medical Association	Harmon L. Monroe, Erwin	Mr. Jack E. Ballentine, 112 Louise Ave., Nashville 5	Nashville, Apr. 10-13
Texas Medical Association	Howard O. Smith, Marlin	Mr. C. L. Williston, 1801 N. Lamar Blvd., Austin	
Utah State Medical Association	U. R. Bryner, Salt Lake City 2	Mr. H. Bowman, 42 S. Fifth East, Salt Lake City 2	Salt Lake City, Sept. 16-18
U. S. Virgin Islands Medical Society	David C. Canegata	Axel C. Hansen, St. Thomas, Virgin Islands	
Vermont State Medical Society	Wayne Griffith, Chester	Mr. Getty Page, 128 Merchants Row, Rutland	Manchester, Oct. 1-4
Virginia, Medical Society of	Walter P. Adams, Norfolk	Mr. R. I. Howard, 4205 Dover Rd., Richmond 21	Roanoke, Oct. 4-7
Washington State Medical Assn.	Emmett L. Calhoun, Aberdeen	Mr. Ralph W. Neill, 1309 Seventh Ave., Seattle 1	Seattle, Sept. 13-16
West Virginia State Medical Assn.	George F. Evans, Clarksburg	Mr. Charles Lively, Box 1031, Charleston 24	White Sulphur Springs, Aug. 20-22
Wisconsin, State Medical Society of	William B. Hildebrand, Menasha	Mr. C. H. Crownhart, P.O. 1109, Madison 1	
Wyoming State Medical Society	L. B. Wilmoth, Lander	Mr. Arthur Abbey, Box 2036, Cheyenne	Moran, June 11-14

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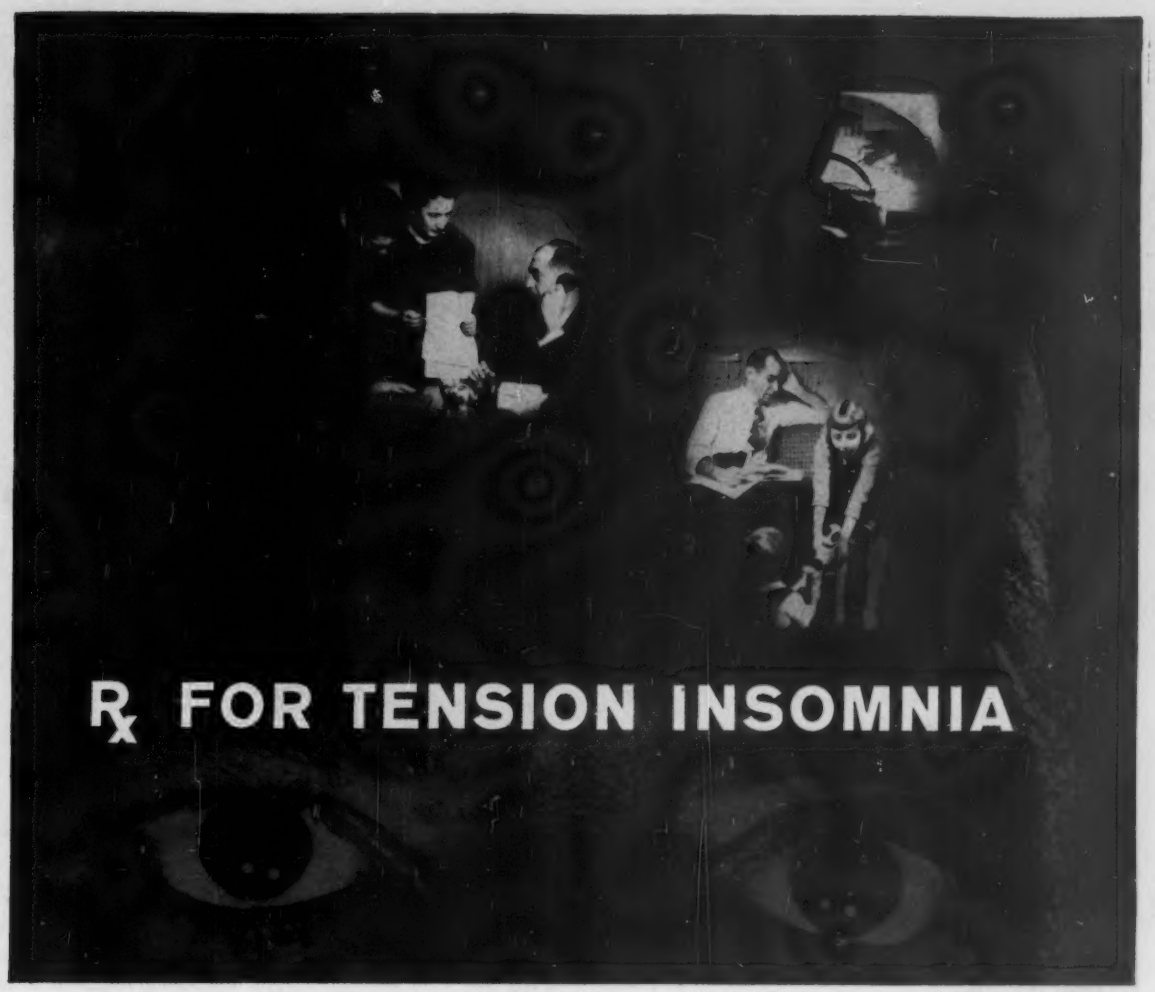

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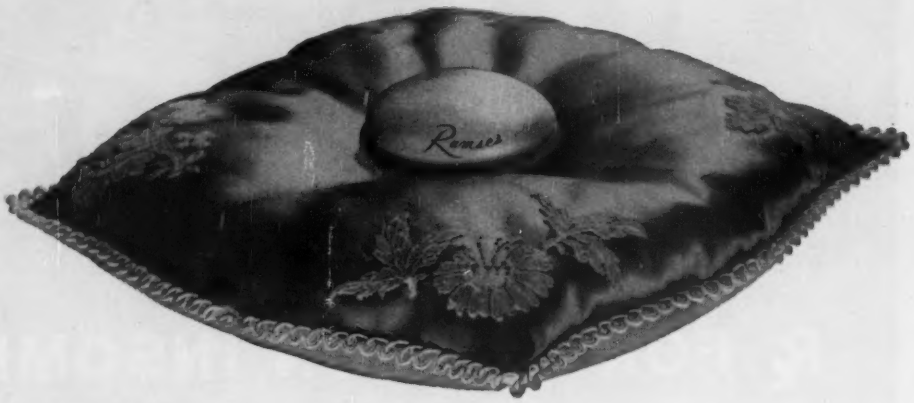

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1. Tietze, C.: Proceedings, Third International Conference Planned Parenthood, 1953.
2. Goldstein, L. Z.: Obst. & Gynec. 10:133 (Aug.) 1957.

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References: 1. Wennersten, J. R.: Antibiotic Med. & Clin. Therapy 5:527 (Aug.) 1958. 2. Isenberg, H., and Karelitz, S.: Paper presented at the Antibiotic Symposium, Washington, D. C., October 15-17, 1958. 3. Olansky, S., and McCormick, G. E., Jr.: Paper presented at the Antibiotic Symposium, Washington, D. C., October 15-17, 1958. 4. Koch, R., and Asay, L. D.: J. Pediat. 53:676 (Dec.) 1958. 5. Shubin, H., et al.: Antibiotic Med. & Clin. Therapy 6:156 (March) 1959. 6. Shubin, H., et al.: Antibiotics Annual 1957-1958, New York, Medical Encyclopedia, Inc., 1958, p. 679. 7. Kaplan, M. A., and Goldin, M.: Paper presented at the Antibiotic Symposium, Washington, D. C., October 15-17, 1958. 8. Meilman, W. J., et al.: Paper presented at the Antibiotic Symposium, Washington, D. C., October 15-17, 1958. 9. Leming, B. H., Jr., et al.: Paper presented at the Antibiotic Symposium, Washington, D. C., October 15-17, 1958.

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FROM OTHER PAGES

Medicine, Magic and Witchcraft in Africa

The African doctor derives his medicine from various sources—from herbs, trees, birds, snakes, sand, hairs of animals—particularly wild animals—external and internal organs of animate creatures, private parts of monkeys and baboons, human and animal fat, pulverized human flesh; in fact, it would be more accurate to say that an African doctor derives his medicine from anything that exists. . . . For curing certain neurotic disturbances, he uses as one of the ingredients melted bicycle and motor car tires.

To an African, whether he is a doctor for curing diseases or an expert in sorcery, his environment is believed by him to be as capable of controlling him as he is capable of controlling it. Although he knows that he is a god of his environment, he believes that objects inferior to him are capable of destroying his existence. The vegetation, the birds, the beasts and anything that exists can be utilized by his foes for his destruction. . . . The whole "science" of Native medicine is interwoven with the culture, customs, traditions and system of beliefs of the African. It is part and parcel of his physical and psychological make-up. . . .

The power of African medicine is not always effective, for it is in the hands of the ancestral spirits, amadlozi or badimo. The ancestors reply when they think it is time, so that it is essential that all ceremonies and customary laws should be observed, not only by doctors, but also by the heads of each and every family. The secrets retained by these medicines is the power of the ancestors whom Africans worship and adore. The communications man has with the ancestors endow him with the secret powers for mastering matter. . . . Zulu medicine and magic are not the same as Sotho medicine and magic, nor is Baca medicine and magic the same as Xhosa. . . . In urban areas where there is a heterogeneous collection of Africans of all tribal affiliations and outlooks, many of the tribal observances have tended to be neglected. But when distress and misfortune befall an urban African family, the African doctor is called and warns the members of the family to observe African ways of life. It may happen that a Zulu doctor is called in by a family of Tswana people to diagnose some illness. He instructs the family in Zulu methods of treating the illness and gives them magical ingredients to prevent witchcraft. The family in their predicament agree to the observances, but after the Zulu doctor has been paid and has departed, the Tswana family begins to question his instructions and to consider them somewhat absurd. . . .

A doctor is one who has been called to this profession by his gods through the spirits. To him it is a commitment, a responsibility, a service to humanity, a service to members in and outside his community. . . . The doctor or inyanga must diagnose and prescribe remedies for ordinary ailments and diseases, prevent or alleviate misfortune, bring prosperity and good luck, and provide protection against bad luck, accidents and witchcraft. He is expected in almost

every instance where people feel insecure and unable to control the daily events to provide assistance. He is not supposed to receive money or fixed payment in advance, as this is against the rules governing his profession. He must come when called even by his rivals or unfriendly neighbours. . . . He is not supposed to enforce payment, as he is a servant of the gods. . . . According to his professional code, no African doctor is supposed to make medicines for bewitching others or for creating ill-fortune in others in order to satisfy people who come to him for advice as to how to bring about the downfall of those they dislike. He may only do so after examining the facts of the case himself by means of divination. If he fails to make due investigation into the case of each client, and to treat it on its merits, he is not an inyanga, a doctor who practices for the good of the community, but a "witchdoctor."—L. Longmore, Medicine, Magic and Witchcraft Among Urban Africans on the Witwatersrand, *The Central African Journal of Medicine*, June, 1958.

Misinformation About Plastic Surgery

We live in the age of plastic, and it has long since past the novelty stage to have a much surprised patient exclaim, "I did not come here for an operation; I want plastic treatment," or to be asked by relatives after operation, "How much plastic did you have to use, doctor?" Only last week a woman came along asking if plastic tubes could be fitted to replace her "Fallopian tubes" which had been removed. Such are the oddities of ignorance. Nevertheless, plastic surgery and plastic surgeons mean many different things to people inside as well as outside the profession.

It is, indeed, one of the oldest ramifications of medical practice. As long as there has been destruction there have been attempts by man to reconstruct the human frame. The word "plastic" is from the Greek word meaning "to mold." By surgeons of repute it is synonymous with reparative or reconstructive surgery of parts lost or distorted by malformation, injury or disease. Nowadays, by the simple process of supply and demand and the difference of temperament, imagination and training required for individuals to pursue the attention to detail which makes for success or failure in this work, it is one of the accepted arbitrary subdivisions of surgical practice. . . . However, it is no sinecure to practise in a field in which public demands and expectations are something quite unreal to the present state of scientific knowledge. . . .

First comes the young lady front-seat passenger, who has been through the windscreen, with the request: "I have come to have these scars removed; they say you can take them right away, doctor."

Next, the woman whose face has been partly destroyed over the years by a little rodent ulcer and perhaps a lot of radiotherapy, who says: "I know you do marvellous things these days and can make me better looking than ever I was."

And last, the menopausal matron with the simple request: "I just want to look young again, and I leave the details to you, doctor—you know best."

These are tall orders, fanciful brain children of wishful thinking and public misinformation.—B. K. Rank, Fact and Fiction of Facial Plastic Surgery, *The Medical Journal of Australia*, Sept. 27, 1958.

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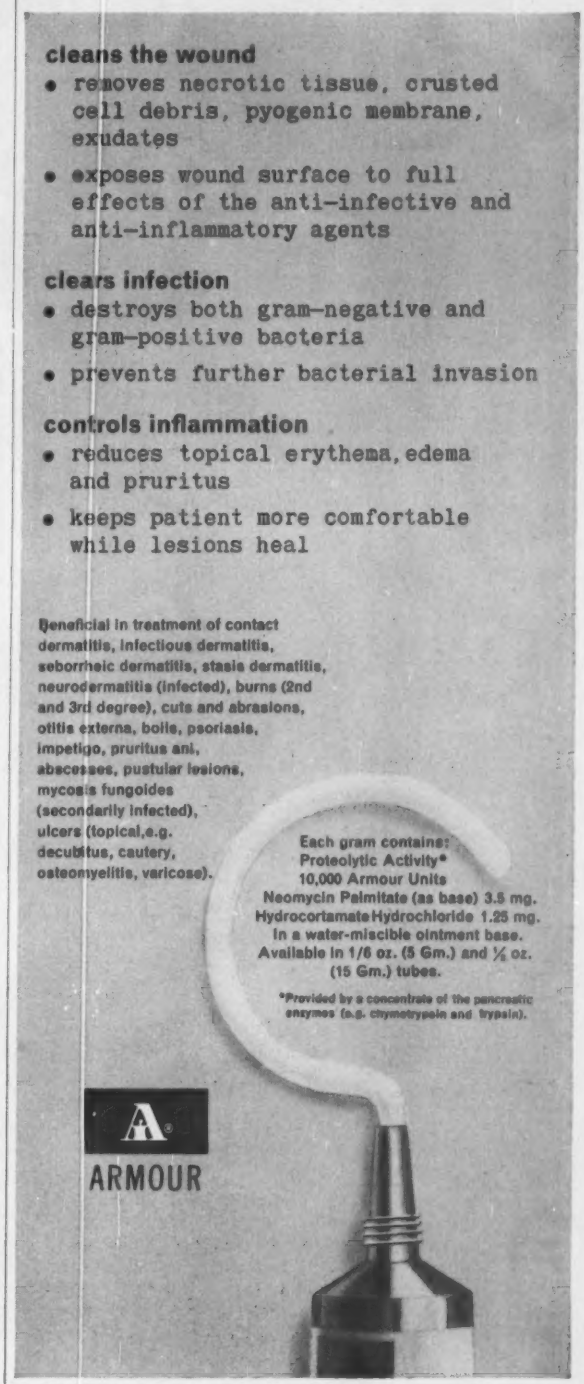
cleans the wound
• removes necrotic tissue, crusted cell debris, pyogenic membrane, exudates
• exposes wound surface to full effects of the anti-infective and anti-inflammatory agents
clears infection
• destroys both gram-negative and gram-positive bacteria
• prevents further bacterial invasion
controls inflammation
• reduces topical erythema, edema and pruritus
• keeps patient more comfortable while lesions heal
Beneficial in treatment of contact dermatitis, infectious dermatitis, seborrheic dermatitis, stasis dermatitis, neurodermatitis (infected), burns (2nd and 3rd degree), cuts and abrasions, otitis externa, boils, psoriasis, impetigo, pruritus ani, abscesses, pustular lesions, mycosis fungoides (secondarily infected), ulcers (topical, e.g. decubitus, cautery, osteomyelitis, varicose).
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10,000 Armour Units
Neomycin Palmitate (as base) 3.5 mg.
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In a water-miscible ointment base.
Available in 1/6 oz. (5 Gm.) and ½ oz. (15 Gm.) tubes.
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orange flavored, 2 oz. bottle, 125 mg. per teaspoonful (5 cc.)

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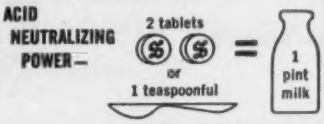

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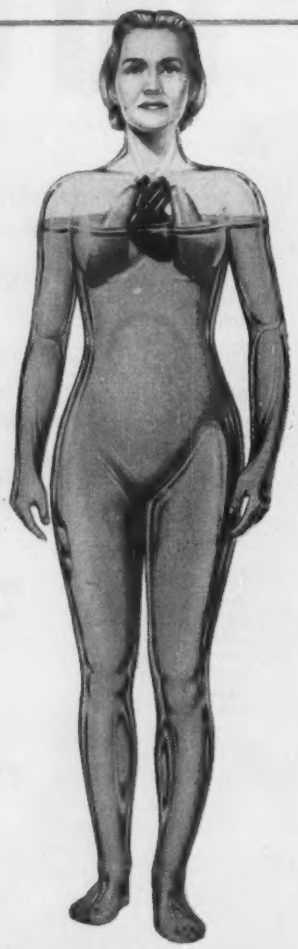

INDICATIONS: Hypertension, congestive heart failure of all degrees of severity, premenstrual syndrome (edema), edema and toxemia of pregnancy, renal edema—nephrosis, nephritis; cirrhosis with ascites, drug-induced edema, and as adjunctive therapy in the management of obesity complicated by edema.

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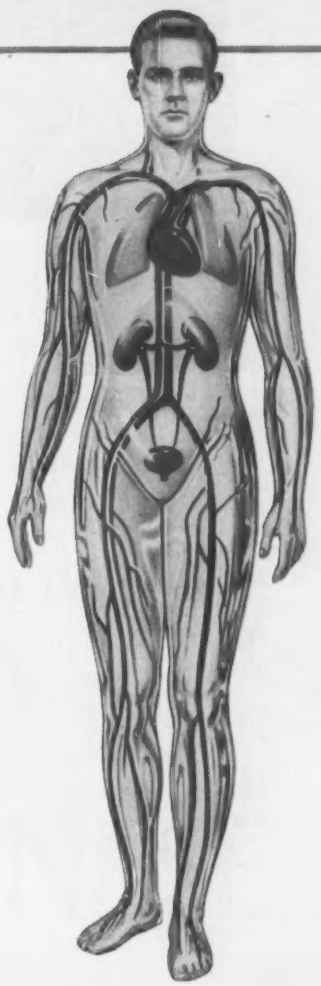

PRECAUTIONS: It is important that the dosage be adjusted as frequently as the needs of the individual patient demand. When HYDRODIURIL is used with a ganglion blocking agent, it is mandatory to reduce the dose of the latter by at least 50 per cent, immediately upon adding HYDRODIURIL to the regimen.

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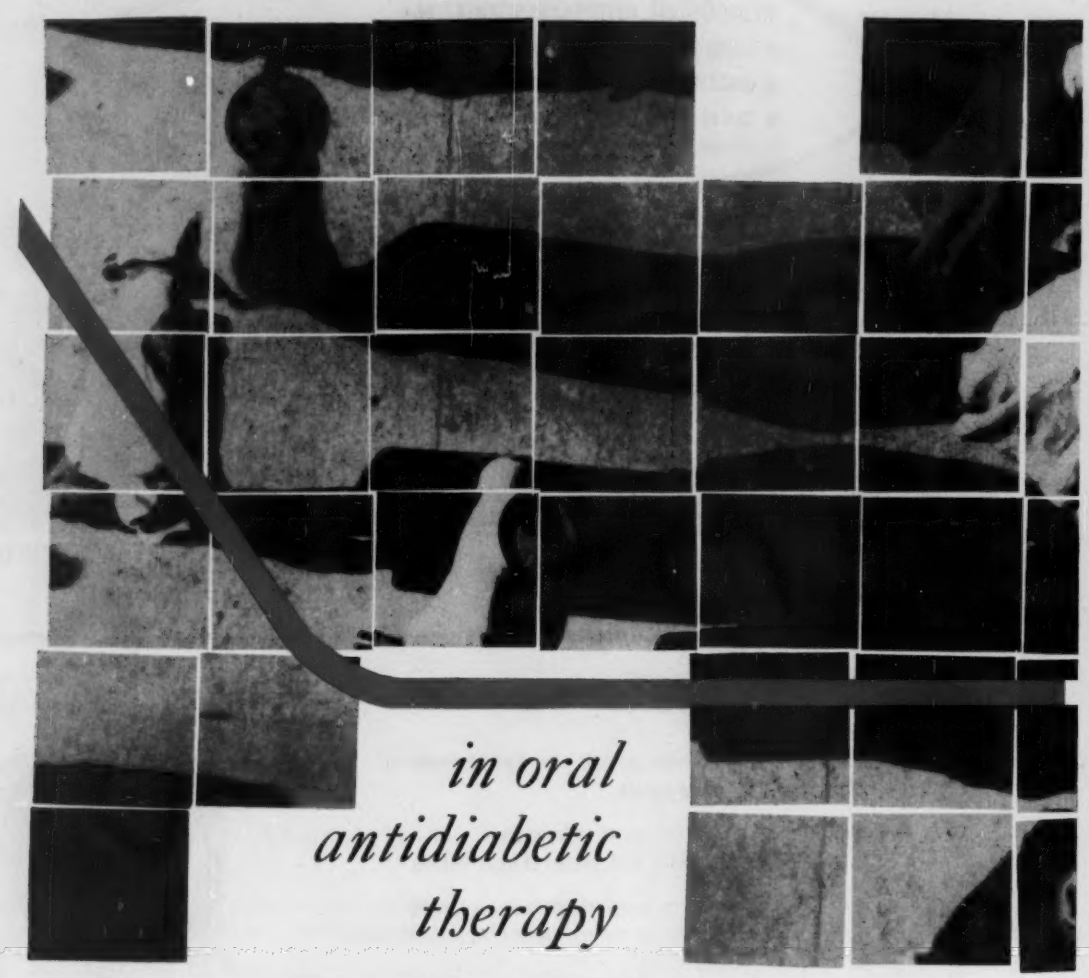

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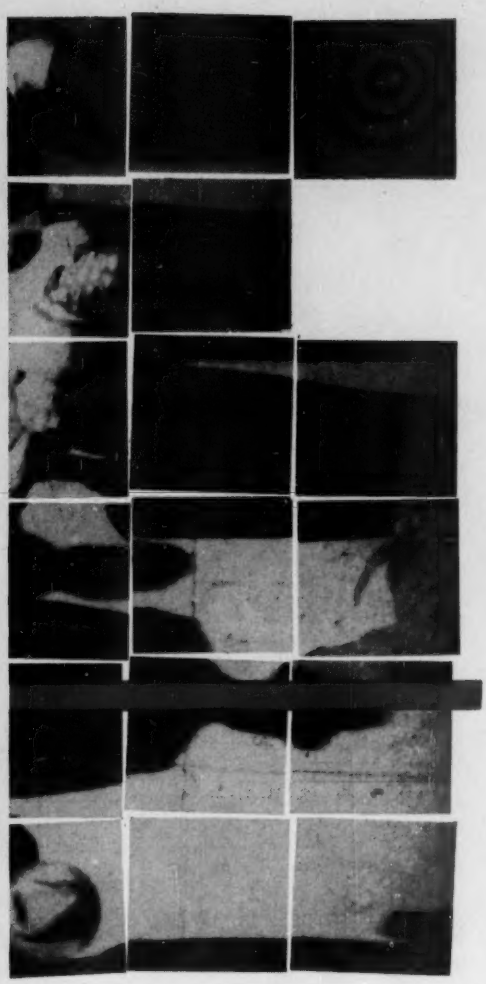

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References: 1. Graham, W.: Canad. M. A. J. 79:634 (Oct. 15) 1958. 2. Robins, H. M.; Lockie, L. M.; Norcross, B.; Latona, S., and Riordan, D. J.: Am. Pract. Digest Treat. 8:1758, 1957. 3. Kuzell, W. C.; Schaffarzick, R. W.; Naugler, W. E., and Champlin, B. M.: New England J. Med. 256:388, 1957.

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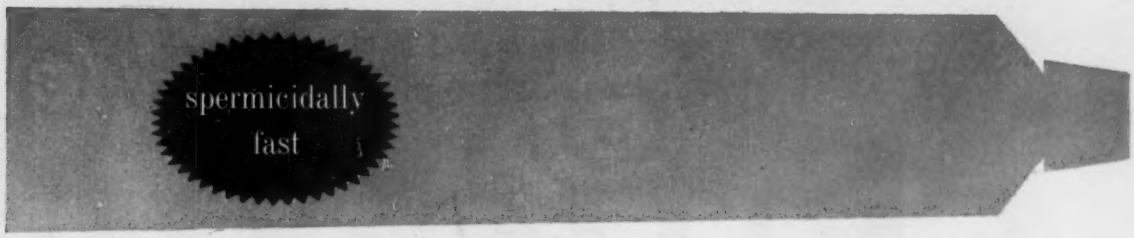

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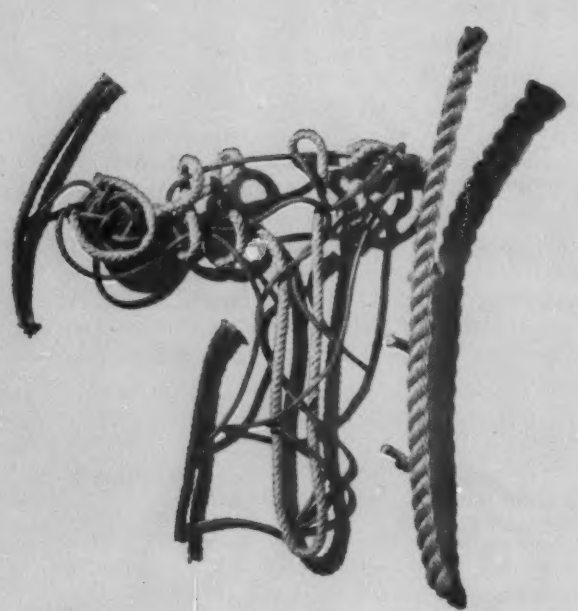

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In the medical management of pyelonephritis, it is important to select an agent such as FURADANTIN which—in addition to its glomerular filtration—is secreted by the cells of the tubules. *Sulfonamides, however, both free and acetylated, are excreted primarily by glomerular filtration*[2] *and "the mechanism of excretion of tetracycline is solely a glomerular filtration process without tubular involvement."*[3]

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References: 1. Smith, I. M., and Lenyo, L.: Am. Practitioner 9:78, 1958. 2. Bass, A. D.: Chemotherapy of Bacterial Infections II: Sulfonamides, in Drill, V. A., ed.: Pharmacology in Medicine, New York, McGraw-Hill Book Co., Inc., 1954. 3. Pindell, M. H., et al.: J. Pharm. Exp. Ther. 122:61A, 1958. 4. Jawetz, E., et al.: A.M.A. Arch. Int. M. 100:549, 1957.

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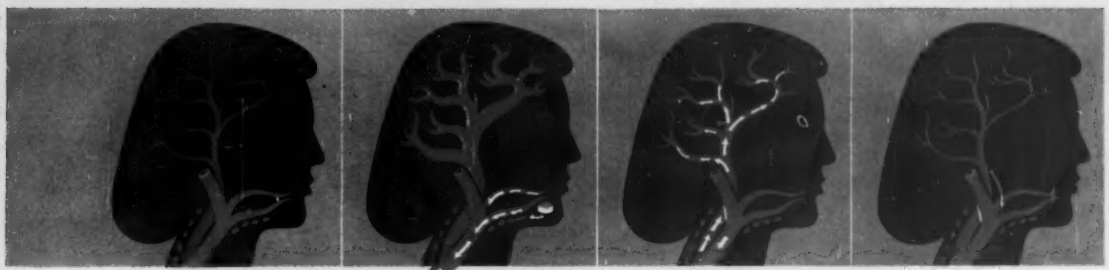

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First prodromal signs, visual signs, irritability, depression.

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ERGOMAR's rapid action – dissolves within 30-60 seconds, is utilized within 10-15 minutes, ensures cerebral vasoconstriction when it is essential—at the earliest moment in the attack, before edema occurs.

DIRECT ACTION

ERGOMAR provides uniform and direct action avoiding the risks and variables of gastric/hepatic absorption. The advantage of sublingual absorption assures rapid, high therapeutic blood levels.

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If recurrent, throbbing headaches are not amenable to ERGOMAR therapy, this would then imply consideration of organic or some other etiology.

DOSAGE: Sublingually, 1 tablet at onset of attack. Additional doses may be taken, if necessary, as follows: 1 tablet every half-hour until relief is obtained. Total dosage must not exceed 3 tablets within 24 hours.

CONTRAINDICATIONS: Peripheral vascular and coronary heart disease, hypertension, renal or hepatic dysfunction and pregnancy.

SUPPLIED: ERGOMAR Tablets, 2 mg. ergotamine tartrate per tablet, in specially developed dispenser packages of 12 tablets. *May we suggest for patient convenience and economy, prescribing 12 tablets.*

REFERENCES: 1. Scientific Exhibit, 9th Annual Meeting, Am. Acad. Neurology, Boston, Mass. April 22-27, 1957. 2. Blumenthal, L. S., and Fuchs, M.: Special Report on Clinical Use. 3. Berman, B. A.: Current personal communication in the files of Nordson Laboratories. 4. Sanders, S. H.: Current personal communication in the files of Nordson Laboratories. 5. DeJong, R. N., and Jones, E.: Current personal communication in the files of Nordson Laboratories.

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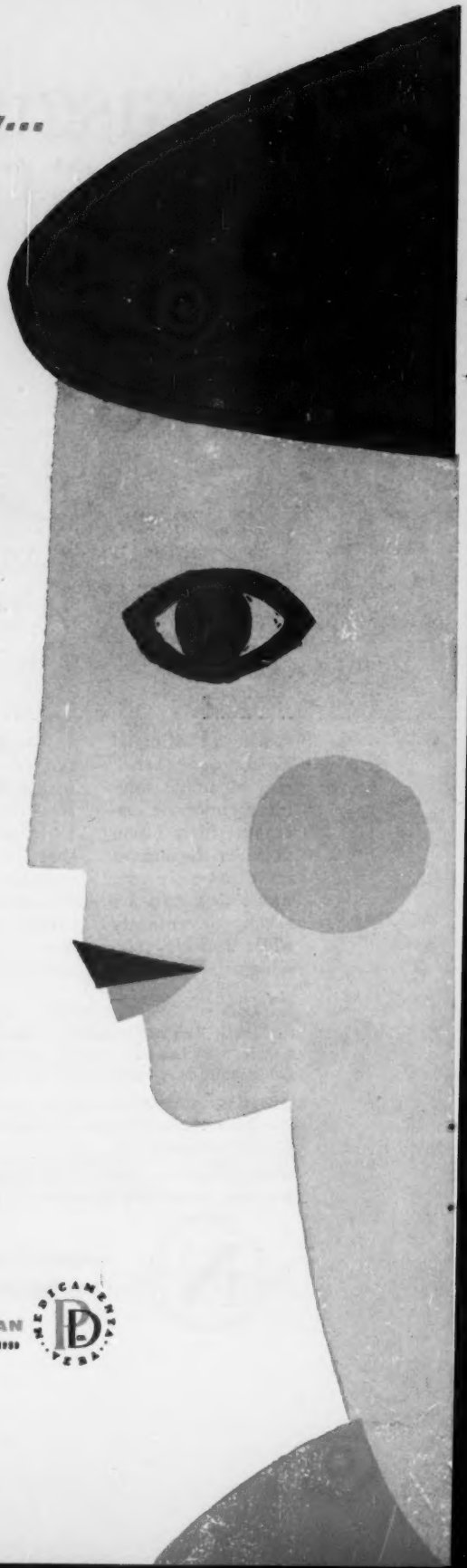

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In childlessness: NORLUTIN was used[2] in a group of women who had definite infertility problems and who had had substantial previous study and treatment. One or more studies of luteal function in each of these patients demonstrated the presence of some abnormality. Of 78 patients treated with NORLUTIN, 19 conceived. The investigators conclude that "...the new steroids [such as NORLUTIN] definitely do offer us a better chance of improving fertility in certain patients and of helping them achieve a pregnancy that otherwise might not occur. ...The incidence of side reactions with NORLUTIN was surprisingly low."[2]

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Number of patients treated	Number of pregnancies	Time of pregnancies	
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*Adapted from Tyler & Olson[2]

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Packaging: 5-mg. scored tablets (C.T. No. 882), bottles of 30.

References: (1) de Alvarez, R. R., & Smith, E. K.: *J.A.M.A.* 168:489, 1958. (2) Tyler, E. T., & Olson, H. J.: *Ann. New York Acad. Sc.* 71:704, 1958.

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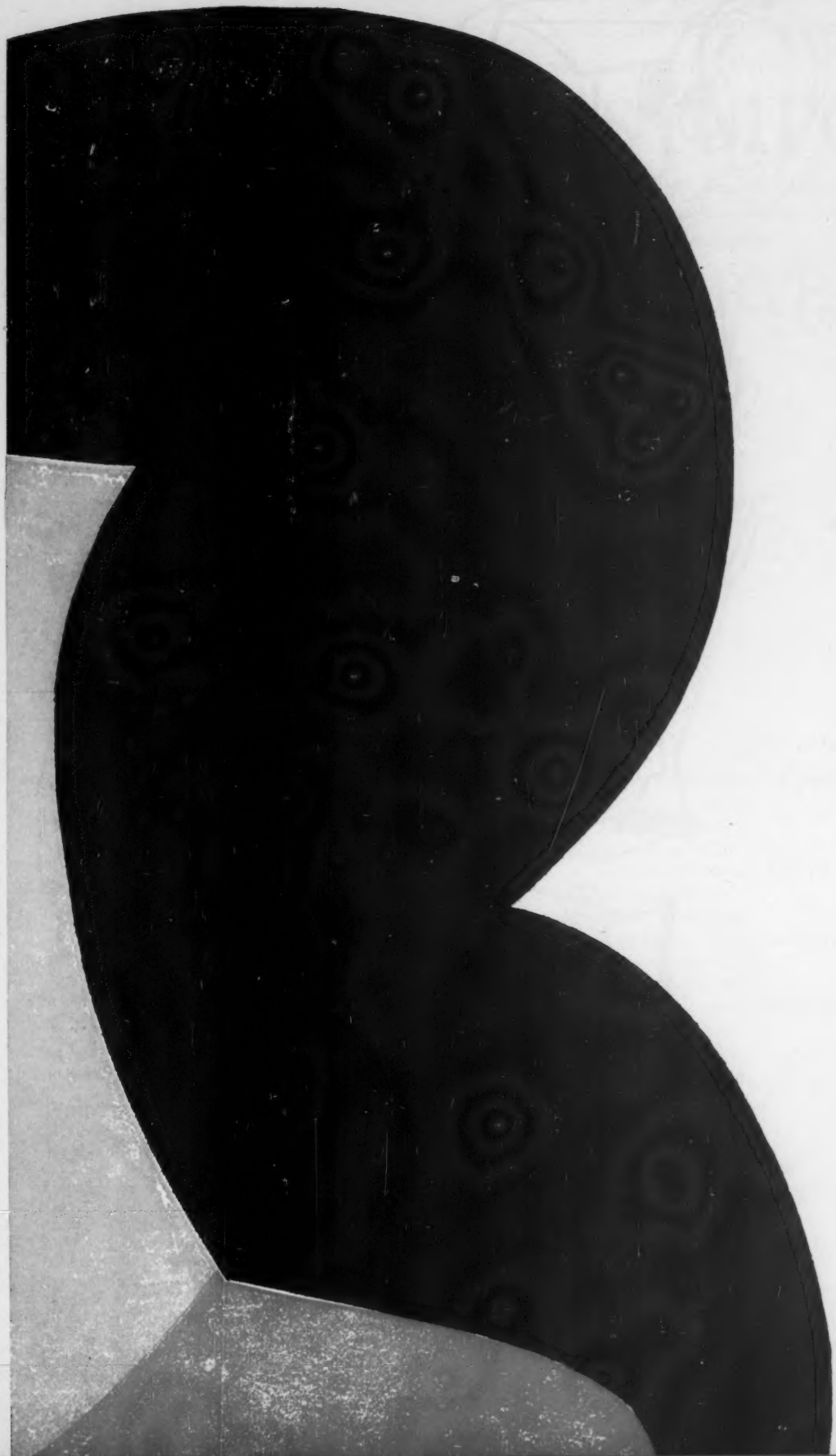

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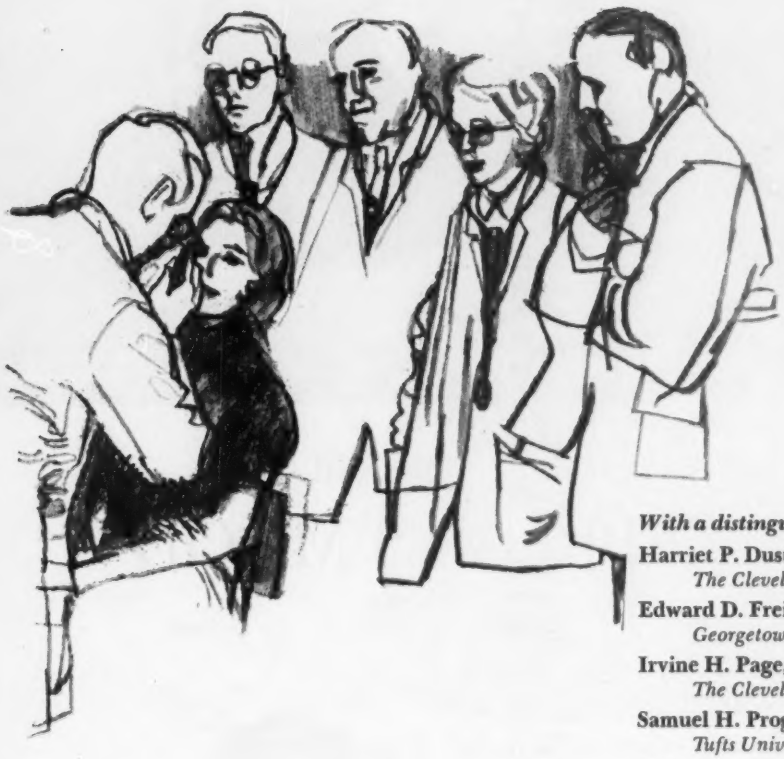

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Irvine H. Page, M.D.
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Samuel H. Proger, M.D. *(Moderator)*
Tufts University School of Medicine

Robert W. Wilkins, M.D.
The Boston University School of Medicine

Where and when you can see this one-hour program on May 27th

Location	*Local Time*
Albany, N.Y., *Sheraton Ten-Eyck Hotel*	9:00 P.M.
Atlanta, Ga., *Dinkler Plaza Hotel*	8:00 P.M.
Baltimore, Md., *Southern Hotel*	9:00 P.M.
Boston, Mass., *Somerset Hotel*	9:00 P.M.
Brooklyn, N.Y., *Brooklyn Academy of Music*	9:00 P.M.
Chicago, Ill., *Uptown Theater (4814 B'way)*	8:00 P.M.
Cleveland, Ohio, *Acad. of Medicine Auditorium*	9:00 P.M.
Denver, Colo., *Albany Hotel*	6:00 P.M.
Detroit, Mich., *Detroit Institute of Arts*	8:00 P.M.
Garden City, N.Y., *Academy of Medicine Bldg.*	9:00 P.M.
Kansas City, Mo., *Hotel President*	7:00 P.M.
Los Angeles, Calif., *Wiltern Theatre*	6:00 P.M.
Memphis, Tenn., *Goodwyn Institute Bldg. Aud.*	7:00 P.M.

Location	*Local Time*
Miami, Fla., *Dupont Plaza Hotel*	8:00 P.M.
Newark, N. J., *Hotel Essex House*	9:00 P.M.
New York, N.Y., *Hunter College Assembly Hall*	9:00 P.M.
Philadelphia, Pa., *Town Hall Auditorium*	9:00 P.M.
Pittsburgh, Pa., *Penn-Sheraton Hotel*	9:00 P.M.
Portland, Ore., *Multnomah Hotel*	5:00 P.M.
St. Louis, Mo., *St. Louis Medical Society Aud.*	8:00 P.M.
Salt Lake City, Utah, *Station KTVT, Studio*	6:00 P.M.
San Francisco, Calif., *Veterans Bldg., War Memorial Aud.*	6:00 P.M.
Seattle, Wash., *Olympic Hotel*	5:00 P.M.
Syracuse, N. Y., *Onondaga County War Memorial Aud.*	9:00 P.M.
Washington, D.C., *Med. Soc. of D. of C. Auditorium*	9:00 P.M.

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- **Restores normal sleep**—without hang-over or depressive aftereffects. Usually eliminates need for sedative-hypnotics.

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References:
1. Alexander, L.: J.A.M.A. 166:1019, March 1, 1958.
2. Current personal communications; in the files of Wallace Laboratories.
3. Pennington, V.M.: Am. J. Psychiat. 115:250, Sept. 1958.

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1. Doshay, L. J.: M. Clin. North America 40:1401 (Sept.) 1956.
2. Doshay, L. J.: Current M. Dig. 22:11:49 (Nov.) 1955.
3. De Jong, R. N.: J. Michigan M. Soc. 57:722 (May) 1958.

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(1) Herland, A. L., Lowenstein, A.: Quart. Rev. Surg., Obst. & Gynec. 14:196 (Dec.) 1957

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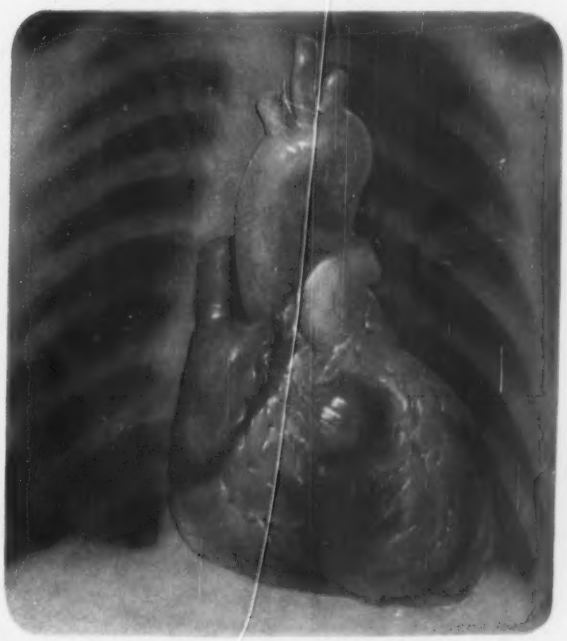

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*Harris, R., and Del Giacco, R. R.: Am. Heart J. *52*:300 1956.

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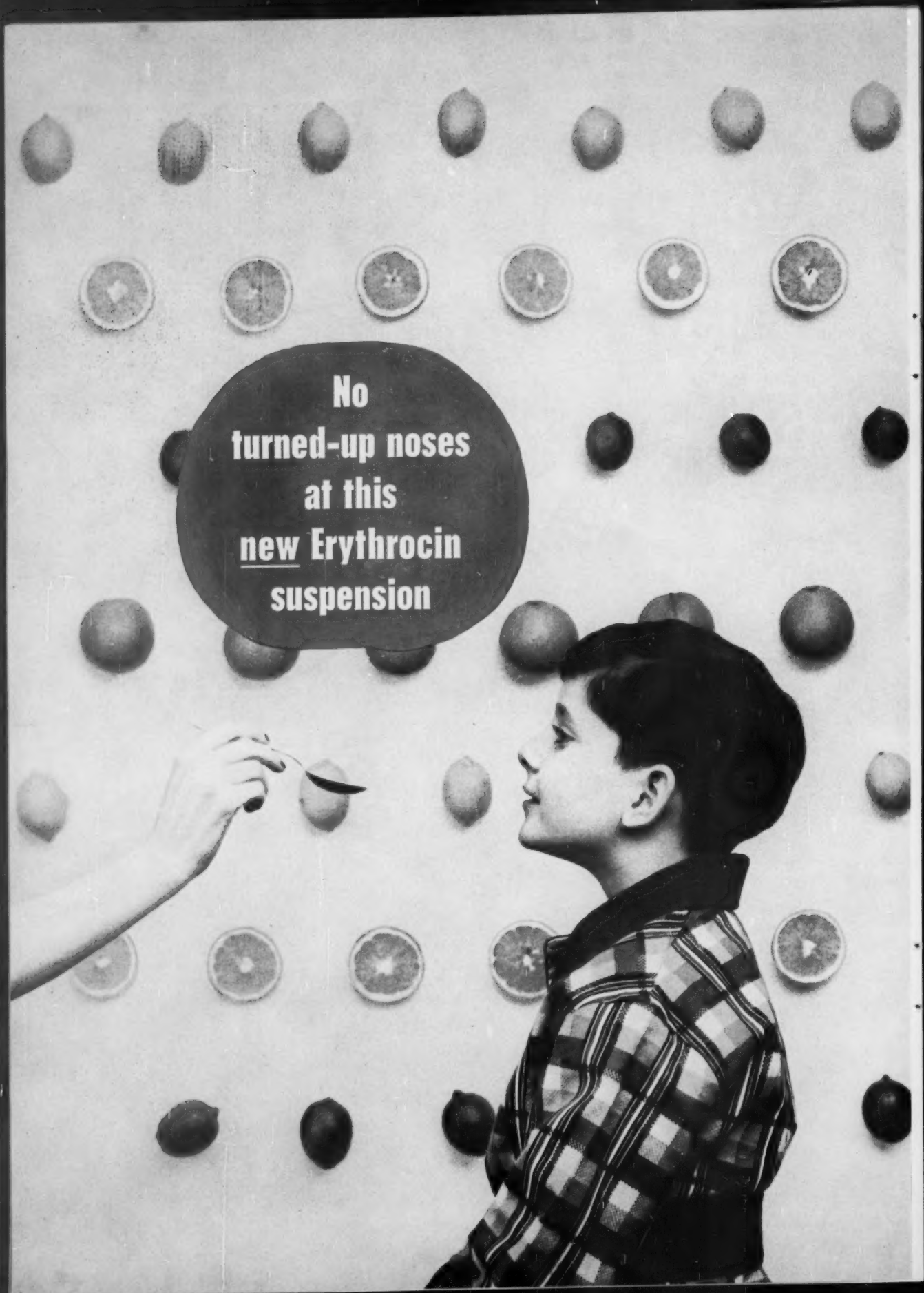
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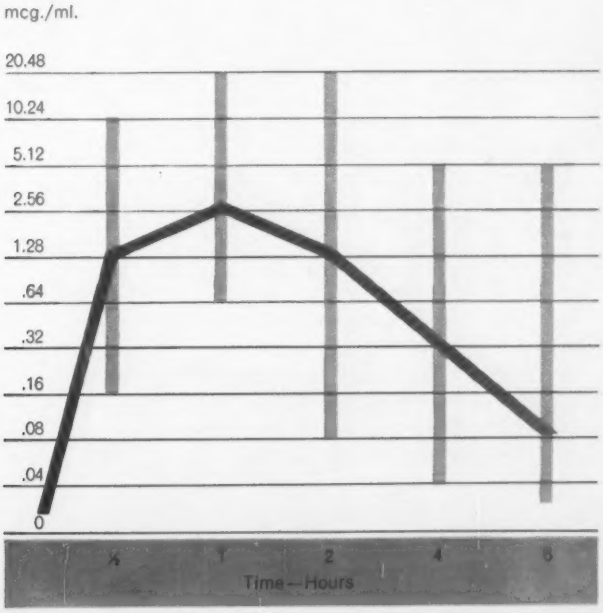

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VOL. 170, NO. 2 — CHICAGO, ILLINOIS — MAY 9, 1959

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CARCINOMA OF COLON AND RECTUM

SURVEY OF SURGICAL MANAGEMENT IN CENTRAL NEW YORK STATE

Robert O. Gregg, M.D., Bruce E. Chamberlain, M.D.
and
Arthur A. Vercillo, M.D., Syracuse, N. Y.

Acute obstruction appears to be the complication of cancer most likely to end fatally. This survey of surgical practices in central New York state communities of varying size revealed a 22% operative mortality among patients admitted with this complication, contrasted with a 3.7% mortality among all other patients who underwent planned operation. In well over 60% of the former, clear-cut symptoms of obstruction had been present for more than three months. Anemia occurred less commonly in the entire series of 623 patients than is usually reported. This and the presence of an abdominal mass do not unfavorably affect prognosis except in lesions of the transverse colon, sigmoid flexure, or rectum. Anterior resection should be the operation of choice for most lesions in the upper part of the rectum or lower part of the sigmoid flexure.

WE, as a committee to survey the work of 32 fellow members of the Central New York Surgical Society, are presenting a review of the results of treatment of patients suffering from cancer of the colon and rectum, during the period 1947 through 1951. We believe that this survey represents a true picture of the behavior of and the management of cancer of the colon in upstate New York. The patients were all managed within a few miles of their homes by members of this society. It would appear that there was very little selection of cases in this series. The survey was conducted primarily to see how well our management measured up to that recorded by the major clinics and to find out in what respect we might improve our therapy.

In the course of analysis of these cases we made several observations which we believe are particularly worthy of general publication. 1. There was a lower incidence of anemia in this series than usually reported—in particular among patients who harbored carcinoma of the ascending colon. 2. Carcinoma arising below the pelvic peritoneal reflection represented a remarkably low percentage of all the cancers in this group. 3. In this group of cases anterior resection appeared to be the procedure of choice for lesions arising from 10 to 15 cm. from the anal verge. 4. We were able to arrive at some conclusion concerning the relative merits of the various types of intestinal preparation. 5. The lethal effects of acute intestinal obstruction were again emphasized, in terms of immediate surgical risk as well as in ultimate survival. 6. The prognostic significance of anemia and palpable mass was determined. 7. The age of the patient was found to be a most important factor in five-year survival.

Method of Survey

A résumé of each individual patient's record was submitted by the surgeon who had cared for the patient. All the case records were reviewed by this committee. The data submitted were therefore those of the 32 surgeons submitting case records on the colon. The conclusions from the analysis of the material are our responsibility.

Location of Lesions.—The intestine was divided into the usual segments for the analysis, except that we omitted the term rectosigmoid and considered all lesions found in this general area to be in either the sigmoid flexure or the rectum. Any growth whose lower border was at or below 14 cm. from the dentate line was arbitrarily considered to be in the rectum. Any lesion arising above this level was considered to be in the sigmoid flexure. Similarly,

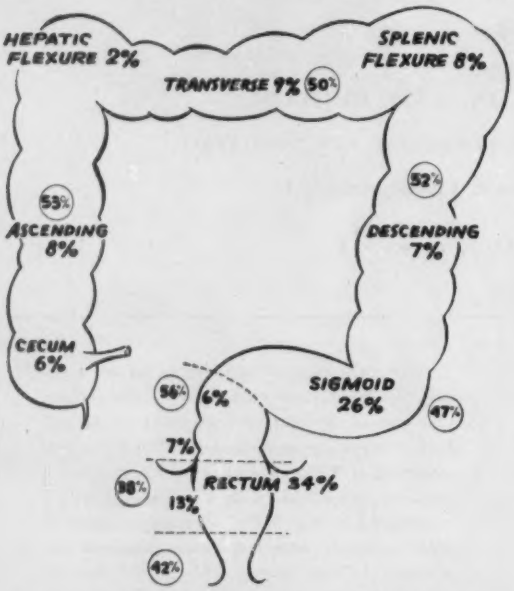

Fig. 1.—Distribution of carcinomas believed to be potentially curable. Percentages shown in circles indicate five-year survival rates of persons who underwent curative resections.

any lesion found at operation 3 in. or more above the peritoneal reflection was arbitrarily grouped in the sigmoid flexure, and any growth situated below this level was grouped in the rectum. The rectal lesions were divided into four groups: those rising above the peritoneal reflection, those involving the peritoneal reflection, those rising below the reflection from 5 to 9 cm. above the dentate line, and those arising from 4 cm. and below.

Definition of Terms.—The term anterior resection was reserved for those resections of the sigmoid flexure or rectum in which the superior hemorrhoidal artery was ligated proximal to at least one sigmoidal branch. If a less radical procedure was carried out the operation was labeled segmental resection. The term palliative resection was used whenever the surgeon, in his opinion, had left grossly visible or palpable cancer in the body of the patient at the conclusion of the surgical procedure. The term resection for cure, or curable lesion, was used whenever the surgeon, in his opinion, had removed all the grossly visible or palpable cancer from the body of the patient. The term five-year survival was applied to all patients alive longer than five years after operation whether free of disease or not. All patients lost to follow-up were regarded as dead.

Analysis of Records

The records of 623 patients who had been operated on were analyzed. Ninety-nine patients were subjected to various minimal palliative or first stage procedures. Hospital deaths occurred in 12 of those for whom a colostomy or cecostomy was established for relief of obstruction and for whom a second stage curative procedure had been planned. Palliative resections were carried out for 88 patients, leaving 436 patients for whom definitive resection for cure was possible. Of these patients, 23 died in the immediate postoperative period. Of this entire group, 213 were alive more than five years after resection.

Since in this survey we were dealing only with patients who had been operated on, we have no reliable criterion by which to judge operability. It should be pointed out, however, that in a similar survey of the Syracuse Medical Center the operability of cancer of the colon in about the same period of study was 96%. Resection of the primary lesion was thought to be desirable for 84% of the patients in this entire series subjected to exploration. Resection for cure was possible in 70% of the entire group. The five-year survival rate was 35% for all patients operated on, 41% for all patients in whom resection was carried out, and 51% for all patients leaving the hospital after resection for cure.

The distribution of single carcinomas believed potentially curable in the various segments of the colon is shown in figure 1. It can be seen that in this series only 34% of lesions were found in the rectum and only 21% in the extraperitoneal portion of the rectum. In 13 patients multiple carcinomas were found at the time of surgery and in 9 patients a second carcinoma of the colon developed subsequently in the period under study. Thus multiple carcinoma developed in 5% of all patients, 3% being synchronous and 2% metachronous.

The average age in this series was 62 years, somewhat older than in most series reported from some of the major clinics. The peak incidence by age was in the seventh decade. Females predominated in this group (270 to 254). Private patients outnumbered the ward patients about five to one in all age groups, with the exception that in the ninth decade the distribution was approximately equal.

Anemia.—Anemia severe enough to be manifested by a hemoglobin level of 11 Gm. or less per 100 cc. of blood occurred in 70 of 436 patients who were subjected to resection for cure. The incidence of anemia was highest among patients who harbored lesions of the ascending colon and progressively decreased in patients with lesions of the transverse colon, splenic flexure, descending colon, sigmoid flexure, and rectum. In this series only 36% of the patients in whom a curative resection of the ascending colon had been carried out and less than 10% of the patients exhibiting similar lesions of the sigmoid flexure and rectum could be classed as anemic.

Palpable Mass.—A palpable mass was found in 70 patients among 270 with potentially curable lesions in the colon above the rectum. Since an additional 215 patients had lesions that could be felt rectally or visualized by sigmoidoscope (fig. 1), there was a total of 285 patients, or 65% of the entire group, whose lesions could be seen or felt. In the patients with lesions of the ascending and transverse colon, approximately 40% of the lesions could be palpated, whereas only 16% of those of the descending colon could be felt.

Complications and Mortality.—In table 1 we have made a careful listing of all complications and deaths. We also tried to determine the underlying causes for these unfortunate occurrences. Males showed an 8% mortality in contrast to 5% in females. The risk of operation progressively rose in each decade past the age of 60. It is noteworthy that 170 resections of the colon proper were carried out in patients under the age of 60 with no deaths. Venous and arterial thrombosis and their consequences accounted for one-third of all complications. Pulmonary emboli likewise accounted for one-third of all deaths.

TABLE 1.—*Complications and Mortality in Patients with Carcinoma of Colon and Rectum in Whom Resection Has Been Done*

Causes	Nonfatal	Fatal	Total
Thromboembolic			
Phlebitis	19	..	19
Pulmonary embolism	7	8	15
Mesenteric thrombosis	..	2	2
Portal venous thrombosis	..	1	1
Cerebral thrombosis	1	1	2
Total	27	12	39
Infectious			
Peritonitis and abscess	31	5	36
Fistula	17	..	17
Dehiscence	7	..	7
Total	55	5	60
Miscellaneous			
Obstruction	10	2	12
Pulmonary	9	2	11
Urinary	22	..	22
Cardiac	..	7	7
Shock	1	2	3
Transfusion reaction	5	1	6
Bleeding	..	2	2
Other	10	2	12
Total	57	18	75

The use of antibiotics was not effective in preventing all infectious complications, since peritonitis occurred in 8% of cases and accounted for one-fifth of all deaths. Anastomotic leakage with fistula formation occurred in 5% of all patients in whom intestinal continuity had been reestablished. Wound dehiscence was surprisingly infrequent, occurring in less than 1 in 50 patients. Urinary complications, usually retention, occurred to a significant degree in 4% of all patients, and most of these occurred after combined abdominoperineal resection. Obstruction of the small intestine was present in a total of 10 patients. In two of these it was the cause of death. Transfusion reactions occurred in five patients and proved fatal in one of these.

TABLE 2.—*Influence of Preparation of Intestine, Prior to Operation, on Infectious Complications in Patients with Carcinoma of Colon and Rectum*

Type of Preparation	Total Elective Cases	Abscesses and Fistulas	
		No.	%
Sulfonamides	215	17	8
Sulfonamides and broad-spectrum antibiotics	51	4	8
Broad-spectrum antibiotics	86	6	7
Cathartics and enemas	40	6	10
None	10	0	

Acute Obstruction and Mortality.—Six deaths after elective resection occurred among 68 patients who had survived decompressing procedures for acute obstruction. If we add to these the 12 patients who died after first stage cecostomy or colostomy and for whom a second stage definitive operation was planned, we find a total of 18 deaths among 80 patients, otherwise potentially curable, who were admitted to the hospital for acute obstruction of the colon. This gives a 22% over-all mortality in this group compared to 3.7% in the group not showing acute complete obstruction.

Preparation of Intestine.—In table 2 we have shown a comparison of the incidence of complications among patients in whom the intestine was unprepared, prepared with sulfonamides (usually succinylsulfathiazole [Sulfasuxidine]), or prepared with broad-spectrum antibiotics (usually oxytetracycline [Terramycin]) or a combination of sulfonamides and broad-spectrum antibiotics. It can be seen that there was little difference in results when sulfonamides, broad-spectrum agents, or a combination of both was used. Infectious complications appeared to be only slightly more frequent when such preparation was omitted.

Closed Versus Open Anastomosis.—Although the closed technique anastomosis was not commonly used in this series, neither infectious complications

nor fistula were reported in this particular group of 32 patients. However, one obstruction due to diaphragm formation did occur.

Combined Abdominoperineal Resections Versus Anterior Resections.—There were 10 deaths, 9%, among 113 patients subjected to combined abdominoperineal resections for cure, whereas there were 4 deaths (3%) among 141 patients who underwent anterior or segmental resection for cancer of the upper part of the rectum and sigmoid flexure. That combined abdominoperineal resection is a serious operation, particularly in the elderly, is attested by an 18% mortality in those operated on in the eighth decade, an age group in which anterior resection carried but a 5% mortality.

Factors Influencing Five-Year Survival

Age.—In figure 2 we have charted the percentage of five-year survivors as well as the five-year expected mortality as predicted in the United States Life Tables of 1950 for the various age groups. The falling death rate from cancer with advancing years is overbalanced by a rising rate from other causes. Whereas at ages 30 to 39 the ratio of cancer deaths to those from other causes is about 20 to 1, it falls progressively to 6 to 1 at ages 40 to 49, 3 to 1 at ages 50 to 59, 5 to 4 at ages 60 to 69, and 1 to 2 at ages 70 to 79. It is perhaps somewhat due to patient selection that in the patients aged 80 to 89 the percentage of survival was as good in the operated group as in the general population.

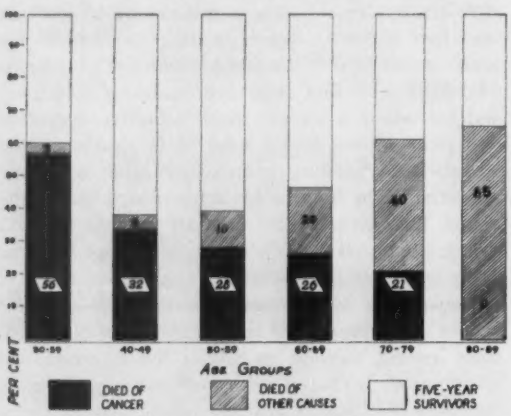

Fig. 2.—Influence of age on mortality from cancer in patients who underwent resection for cure.

Site of Lesion.—It is shown in figure 1 that there is relatively little difference in survival rate according to site except that a poor prognosis is evident for patients in whom the extraperitoneal portion of the rectum is involved. The five-year survival rates were 40% for patients with involvement of the extraperitoneal portion of the rectum, 47% for the sigmoid flexure, 52% for the descending colon and the splenic flexure, 50% for the transverse colon, and 53% for the ascending colon.

Anemia.—The five-year survival of anemic patients who at operation had a curable lesion was not particularly different than the cure rate for the entire group. It is even possibly significant that the cure rate for curable cancer of the ascending colon in the presence of anemia was considerably better than for the entire group—70% as compared to 53%. However, if we include all anemic patients we find that the over-all cure rate is somewhat worse for the entire group than with patients who did not suffer anemia. Analysis showed that 37% of patients who were anemic and had cancer of the ascending colon survived the five-year period, whereas 33% of all nonanemic patients with lesions at the same location survived the five-year period. This includes all patients. Prognosis for patients with such lesions involving the descending colon was somewhat worse but not hopeless—25% as compared to 35%. Anemia, however, in the presence of a carcinoma of the rectum was a particularly bad prognostic sign, since only one-sixth, or 16%, of these patients survived five years, whereas 40% who were not anemic survived this period.

Palpable Mass.—The five-year survival rate among patients harboring a cancer of the ascending colon whose lesions were palpable through the abdominal wall was equal to that found in the patients whose lesions were not felt (17 of 37). We regard palpation of such a lesion as a poor prognostic sign in the transverse colon, since only 5 of 22 patients with such palpable growths survived five years. The prognosis for patients having palpable lesions of the descending colon was not quite as good as those with lesions not felt (15 of 35) but was much better than for those in whom lesions of the transverse colon were felt.

Acute Obstruction.—Acute intestinal obstruction for many years has been regarded as a poor prognostic feature in association with carcinoma of the colon. If we consider only patients operated on for cure, the survival rate of 35% among patients with obstruction is compared to 54% for all other patients for whom resection for cure was carried out. If we consider all patients originally operated on, the cure rates are 25 and 36% respectively. Analysis of these patients' records for other serious prognostic features showed there was not a higher incidence of lymph node metastasis, serosal extension, or local fixation than in the remainder of the group.

Perforation.—In 24 patients gross perforation of cancer had occurred. Eighteen resections were regarded as curative and six for palliation only. Three deaths occurred among eight patients for whom emergency resection was carried out. Rather surprisingly, 5 of these 18 patients subjected to so-called curative resection in the presence of frank perforation of the colon survived the five-year period.

Local Fixation.—Local fixation of a lesion to a locally resectable site was not necessarily a bad prognostic sign. Among 20 patients whose lesions were in the ascending colon, splenic flexure, or the descending colon, there were 13 five-year survivors when resection was carried out with a view to cure. There were 7 survivors among 19 whose lesions were in the sigmoid flexure. However there were but 2 survivors among 18 patients with fixed cancer of the rectum. It is apparent from these figures that the prognosis is not necessarily bad if one is capable of removing en bloc the carcinoma with its zone of contiguous spread, such as is usually possible in cancer of the intestine involving either flank.

Serosal Extension.—There was surprising little difference in survival rate between the group of patients whose lesions showed serosal extension (48%) and those whose lesions had not broken through the full thickness of the intestinal wall (54%).

Microscopic Grade.—A relatively small percentage of the growths in this series were graded according to Broders' index. This fact has prevented a fully accurate report of the effect of this factor on five-year survival in this series. However, of 149 patients whose carcinomas were graded 1 or 2 according to Broders' classification, there were 76 five-year survivors (51%), whereas there were 24 survivors (40%) among the 59 patients whose lesions were of high grade 3 or 4. Patients with mucin producing carcinomas showed a 32% five-year survival, whereas there were 99 survivors of the 161 (61%) patients whose lesions were ungraded.

Nodal Metastases.—The absence of nodal metastases was a reasonably good sign for patients with lesions at all levels. The presence of lymph node metastases offered only a slightly poorer prognosis for the colon, being 43% for the ascending colon and 45% for the remainder of the colon proper, but was of serious portent in the presence of cancer of the rectum. Only 26% of patients with rectal lesions survived the five-year period.

Combined Abdominoperineal Resection Versus Anterior Resection

Although combined abdominoperineal resection was rather infrequently carried out for lesions of the upper part of the rectum in this series, certain comparisons can be made with anterior resection. The five-year survival rates applied to lesions at identical levels, 9 to 15 cm., were approximately equal. A breakdown of the cases as to the presence of lymph node metastases showed little difference. Similarly, the distribution of the lesions with serosal spread was practically identical between those operated on by either method. There were 23 five-year survivors among the 45 patients submitted to anterior resection and 12 five-year survivors among the 25 patients subjected to combined abdominoperineal resection. All that we can state is that in this series there was no demonstrable superiority for either operation in terms of five-year survival. As we have shown previously, the mortality after combined abdominoperineal resection was approximately three times as great.

Comment

We believe this survey is unique in that cases from many surgeons from small and relatively large cities are included. Some of these surgeons work in teaching centers, others have no house staff. We believe the case material studied is representative of not only the true picture of colon cancer as seen in this part of New York state but also the current standards of surgical treatment of this disease in this area. The incidence, by site, sex, and age, is undoubtedly accurate. The operability and curability are in close agreement with other reports.

Hospital complications and causes of death have changed since the advent of antibiotics. Whereas peritonitis still is a serious problem, vascular complications, both venous and arterial, have assumed a major roll in morbidity and mortality.

Acute obstruction still appears to be the complication of cancer most likely to end fatally. When we consider that well over 60% of the patients who entered the hospital because of acute intestinal obstruction had had clear-cut intestinal symptoms for more than three months, we realize that much of this mortality could have been avoided by more prompt diagnosis. There is some factor about obstruction which not only is more apt to be more immediately lethal but, if the patient survives the initial obstructive episode, appears to increase the possibility of metastasis. Possibly the enormous pressures built up in the intestine force cancer cells in increasing numbers into the blood stream, although to our knowledge there is no proof of this theory. Certainly we all know that cancer cells are often pushed in the blood stream in the course of operative manipulation, and it would appear that the pressures built up in the colon in the course of the acute obstruction of the large intestine would be many times that produced by the surgeon in the ordinary surgical procedure.

From the results of this study we can hold no brief for a specific type of preoperative preparation except to state that the nonabsorbable sulfonamides and the broad-spectrum antibiotics either alone or used in combination did not always prevent infection. There seemed to be slightly fewer complications in the patient whose intestine was thus prepared than in those in whom no preoperative chemotherapy or antibiotic was used, although the differences were not great. Possibly some of the newer types of preparations, the combination of sulfonamides and neomycin sulfate, may in fact be superior to those which were used during this period.

Anemia in this series was slightly less common than in other series reported, especially when considering cancer of the ascending colon. These

lesions were diagnosed somewhat earlier, anemias had been treated, or our criterion for anemia was slightly more strict than that used in some other series. The presence of anemia did not appear to unfavorably affect prognosis except in cases of cancer of the transverse colon and rectum.

An abdominal mass was palpated in approximately 30% of patients whose disease was in the body of the colon. As in anemia, the presence of the mass did not influence the prognosis except with lesions of the transverse colon and the sigmoid flexure.

We tried very carefully in this series to assay the comparative results of combined abdominoperineal resection and anterior resection when applied to patients suffering from carcinoma of the upper part of the rectum from 10 to 15 cm. As far as we could determine, the prognosis was equal. The morbidity and mortality of combined abdominoperineal resection was considerably greater, particularly when the operation was carried out on the elderly; the over-all mortality of combined abdominoperineal resection was 9% and, of anterior resection, 3%; in patients past the ages of 70 the figures were 18 and 5% respectively. The facts speak for themselves. It would appear that if 3 in. of normal intestine can be removed distal to the lower border of the lesion and if the middle hemorrhoidal pedicles are included in the specimen, anterior resection should be the procedure of choice for lesions involving the colon from 10 to 15 cm. It is noteworthy that in 74% of all patients in this series continuity of the intestine was restored without loss of sphincteric action.

Summary and Conclusions

Case records of 623 treated patients suffering from cancer of the colon and rectum were reviewed. Five-year survivals occurred in 35% of the entire series, in 41% of all patients whose growths were removed, and in 51% of all patients who left the hospital after resection for cure.

Thirty-four per cent of carcinomas were found in the rectum but only 21% of the entire group within the extraperitoneal portion of the rectum. Less than 50% of all malignancies could be felt or seen by the sigmoidoscope, but an additional 15% could be palpated through the abdominal wall. Thirty per cent of the carcinomas of the colon proper could be felt transabdominally. The presence of an abdominal mass involving either flank did not materially worsen the prognosis.

Anemia occurred less frequently in this series than usually reported. Only 36% of patients who suffered carcinoma of the ascending colon showed a low hemoglobin level. Anemia was not of serious prognostic import except in dealing with cancer of the transverse colon or the rectum.

There was a 22% operative mortality among the patients who entered the hospital because of acute intestinal obstruction and for whom curative resection was planned, as contrasted with a 3.7% mortality among all other patients who underwent resection for cure. Five-year survival, including hospital survival, was 35% in the obstructed group and 54% in the nonobstructed group. Preparation of the colon with either enteric sulfonamides or broad-spectrum antibiotics resulted in a slightly decreased incidence in infectious complications and fistula formation.

The mortality after combined abdominoperineal resection was three times that of anterior resection when applied to patients with lesions of the upper part of the rectum and sigmoid flexure, whereas the five-year survivals were not appreciably different.

A very important prognostic feature was age. The death rate from cancer in five years among the group in whom resection for cure was carried out progressively fell with each decade from 56% in the fourth decade to only 21% in the eighth decade.

Curable carcinoma of the ascending colon is not usually associated with anemia. The occurrence of anemia, the presence of abdominal mass, or local fixation does not unfavorably affect the prognosis except in patients with lesions of the transverse colon, sigmoid flexure, or rectum. Intestinal obstruction is the single greatest factor of bad portent in terms of both the operative and the long-term survival. Anterior resection, when technically feasible, should be the operation of choice for most lesions in the upper part of the rectum or lower part of the sigmoid flexure.

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FOODS STERILIZED BY GAMMA RADIATION.—In the Metabolic Ward of the Medical Nutrition Laboratory, studies with human volunteers of forty irradiated foods stored and frozen, and some stored at room temperature, have been completed. The volunteers have been checked by a battery of clinical tests, such as liver and kidney functions, blood counts, electrocardiograms, x-ray examinations, and determinations on the urine and feces. Follow-up examinations have also been accomplished after six and twelve months. To date, no evidence of toxic effects from consumption of irradiated foods has been revealed. There is no significant difference in metabolizable energy or digestibility between irradiated and non-irradiated foods. There is no consistent pattern as to acceptability of irradiated foods. Herbert Pollack, M.D., Wholesomeness of Irradiated Foods, *Journal of the American Dietetic Association*, March 1959.

THE CANDIDATE FOR CORONARY HEART DISEASE

DISCRIMINATING POWER OF BIOCHEMICAL HEREDITARY AND ANTHROPOMETRIC MEASUREMENTS

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and
Howard A. Rusk, M.D., New York

It is desirable to develop criteria with which to judge whether given persons or groups of persons are likely to have coronary heart disease later in life. The technique of discriminant function analysis of variance has been applied to data on 100 normotensive patients under the age of 40 with coronary heart disease and to 146 putatively normal subjects. The presence or absence of coronary heart disease was correlated with the logarithms of height and of total serum cholesterol, serum phospholipids, and serum uric acid levels and with four anthropometric indexes and familial incidence. The highest correlation was between coronary heart disease and total serum cholesterol level. There was a negative correlation with stature, the taller subjects being less likely to develop coronary heart disease. The correlations found have been combined in a multiple regression equation which has a measurable predictive value in groups of persons and promises to be useful as a research tool.

There is a growing interest in the relationship between certain biological characteristics and proneness to cardiovascular disease.[1] Such a relationship, when it can be clearly established, could be very useful for predictive purposes. Considerable preliminary work has to be done, however, before predictive experiments can be designed. In developing some means for preselecting "normal" persons for detailed study, it is difficult to establish what is to be considered normal because it is apparent that many presumably healthy persons are incubating chronic cardiovascular disease.

Enormous strides have been made in controlling the acute infectious diseases because of the success of epidemiologic studies coupled with the advances in therapeutics. One of the consequences of an effective program in controlling the acute infectious diseases is the rise of the age at death in the American population from 45 years of age in 1900 to 73 years of age in 1957.[2] The rise in longevity in the American population has contributed to a large extent to the rise in mortality and morbidity due to cardiovascular disease, cancer, and arthritis. Along with this greater longevity, the entire population will increase from 170 million in 1956 to 225 million in 1980.[2] Thus, the population not only will increase in actual numbers but will be an older population. It has been calculated that, in 1900, only 13.6% of the population was over 45 years of age while, in 1980, according to estimates, 43% of the population will be over 45 years of age.[2] Accordingly, the problem of chronic disease will become of increasing importance and major concern.

There is no doubt that the successful prevention of coronary heart disease will begin by recognition of the disease in its incipient form and delay of the onset of the disease by preventive measures. In 1951, a report by Gertler, Garn, and White [1a] suggested the possibility of preselecting from putatively healthy persons those who may be candidates for coronary heart disease. This method of preselection was based on the presence of a combination of factors in a healthy, noncoronary group similar to those observed in a coronary heart disease group. Shortly after this communication was published, other workers attempted to predict proneness to coronary heart disease by elevation of levels of serum lipoproteins in conjunction with blood pressure [1b] or by a combination of serum cholesterol level, blood pressure, and weight.[1c] These latter two methods of preselection have demonstrated that, by a critical assemblage of the variables mentioned, a better measure is obtained of the person as a candidate for coronary heart disease. These methods do not include such important measurements as height in relationship to weight, body build, heredity (mother, father, and siblings), and levels of individual lipids (cholesterol, lipid phosphorus). It is, therefore, reasonable to suggest that by including additional variables which are known to differ significantly in a normal healthy group and a proved coronary disease group a higher degree of discrimination of potential candidates for coronary heart disease will be possible. It should be emphasized at this juncture that, as additional criteria are uncovered, the possibility of such discrimination for the person will be greater.

A preliminary statistical study undertaken in conjunction with the statistical division of the International Business Machines Corporation Service Bureau indicated that the technique of discriminant function analysis of variance with use of an electronic computer would be valuable in "correlating" and "weighing" the individual characteristics from the normal group so that they might form the basis of preselection individually with a very high degree of discrimination.

From the Institute of Physical Medicine and Rehabilitation, New York University College of Medicine.

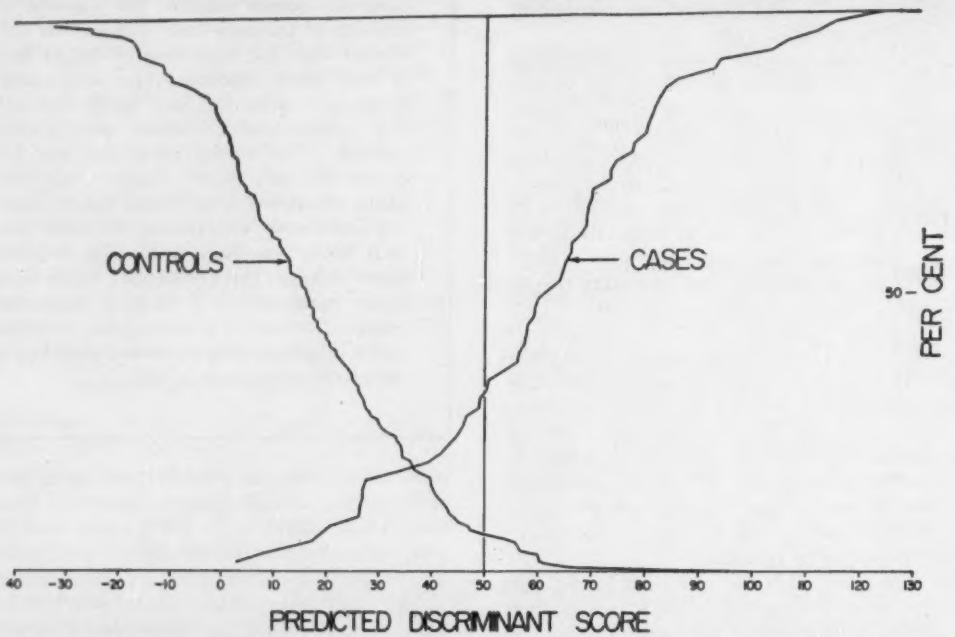
Methods, Materials, and Techniques for Analysis

Considerable data have accumulated in recent years to indicate a relationship of various specific factors to cardiac disease. By means of such relatively simple statistical procedures as the "t" and "F" tests, it is possible to show significant associations between specific factors and heart disease, e. g., serum cholesterol level and coronary heart disease. On other suspected factors, data continue to accumulate but positive correlations have not yet been established. It remains to effect some way to determine where an unknown, i. e., an individual, fits in relationship to the probability of having or not having heart disease. In other words, it is desirable to make some discrimination between persons or groups as to whether coronary disease may or may not occur in advance of the onset of the disease.

If, for example, the total cholesterol level for the diseased group and the controls is examined, it is found that the diseased group has the higher total cholesterol level on the average but that there is considerable overlap. Similarly, the two groups differ with respect to several other variables. Each of the variables will furnish poor material for discrimination, but a combined score may well be much better. The question of which particular combination to use to best discriminate the two groups has been subjected to precise quantitative evaluation. The resulting methodology was shown by Fisher [9] to be equivalent to the use of the multiple regression equation obtained when the variable to be predicted (the dependent variable) is chosen to be, say, 0 for one of the groups (here the control group) and 100 for the other group (here the coronary heart disease group). The predicting (independent) variables are the biochemical, genetic, and other factors which could be measured prior to the overt manifestation of the disease, for example, the total serum cholesterol level mentioned above.

The selection, composition, and type of studies conducted on the coronary heart disease group and the control group have been described in great detail elsewhere.[14] The multiple regression equation used here as a discriminator is based on the original findings in these two series of persons.

In the initial study, a discriminant analysis of the data was made with use of the following variables to calculate a score which would best distinguish between control cases and disease cases: height, weight, ponderal index (height over cube root of weight), total serum cholesterol level, ratio of total cholesterol and phospholipids levels, ratio of total cholesterol, serum uric acid, and phospholipids levels, endomorphic index, mesomorphic index, ectomorphic index, and presence of coronary heart disease in mother, father, and sibling(s).



Percentage of cases and normals misclassified as function of discriminant score. Cases are plotted from left to right and controls from right to left for facility in indicating percentage of misclassification.

The resulting discrimination was good, but it was believed that an improved analysis should be made by transforming the biochemical and physical measurements to logarithms. In this form the various ratios could be replaced by the original variables. In the initial analysis there was a larger dispersion of discriminant scores within the coronary group than within the control group. It was expected, and such proved to be the case, that this heterogeneity would be corrected in the second analysis, per-

formed by the computing laboratory of the New York University College of Engineering, Research Division.

In order to delineate better the principle used to obtain the discriminant scores, it may be worthwhile to note that the weights on the various contributing scores in the discriminating combination are so chosen to make the variation of the scores within the diseased group and within the control group as small as possible while keeping the difference between the groups large. There is, naturally, some dispersion of the discriminant score, but high values are associated with persons with coronary disease and low scores with control subjects. A dividing point of 37 on the discriminant score (see figure)—which does not involve the dependent variable but which might help predict it in advance of the onset of the disease—correctly classified 81% of both groups. Thus, 81% of those with coronary disease had a score above 37 while only 19% of the controls were found to have such a score, and 81% of the controls had a score below 37 while only 19% of those with coronary heart disease scored below this dividing point. If it were necessary to predict the proneness for coronary heart disease of every "unknown," it would be possible to classify about 81% of the subjects correctly. If one limits the scores to above 87 or below 0, it is possible to classify over 98% of the selected persons correctly. About 12.5% of those with coronary disease and 12.5% of the controls fall within these ranges, thus permitting a modest percentage of the entire population to be classified with a great degree of certainty.

Results

One hundred patients with well-documented "pure" coronary heart disease and 146 control (putatively normal) subjects in this series were first studied in 1947. Thirty-nine patients with coronary disease and 11 control subjects were not included in this discriminant analysis because data were incomplete. The means and standard deviations of all the variables included in this study were not affected sufficiently to alter the validity of this analysis by the absence of these data. By calculation of discriminant scores with various combinations of one or more independent variables, certain factors could immediately be eliminated from consideration. Thus, it was found that body weight was not a significant variable, although it is to be noted that this is under conditions of normal blood pressure. This bears out findings from a previous study.[4] Ponderal index was eliminated in favor of the significant portion of the index, i. e., height. Analyses to date (see table) indicate that the taller the subject is the less likely will coronary heart disease be present, i. e., a negative correlation. The mesomorphic index appears to be significant in the discrimination. This suggests that it may be a somatic indicator of the genetic type of person predisposed to coronary heart disease. Ectomorphic and endomorphic indexes and some of the "logical" combinations of the presence of coronary heart disease in parents and/or siblings were not found to be significant. When coronary heart disease appears in the family, it is more significant if both parents have it, with occurrence in father and sibling(s) or mother and sibling(s) of slightly lesser significance, as seen from the order in which they enter the step-wise regression. The ratios of cholesterol and phospholipids levels and total cholesterol, serum uric acid, and phospholipids levels were less effective as variables than the logs of each of the actual blood chemistry readings. Phospholipid level is also slightly negatively correlated, although there is a complex interaction between this factor and the serum cholesterol level, which shows a strong position significance. This has a biochemical bearing which is beyond the scope of this paper.[5] This relationship is expected to be the object of further study. Inclusion of blood uric acid level in the analysis does not improve the discriminant score to any great degree.

Results of Analysis

Coronary Discriminant Analysis

X_1	Log of height
X_2	Log of total cholesterol level
X_3	Log of phospholipids level
X_4	Log of uric acid level
X_5	Mesomorphic index

	Disease in Family		
	Mother	Father	Siblings
X_6	+	+	−
X_7	+	−	+
X_8	−	+	+

$Y = X_9 = (100 = \text{coronary}, 0 = \text{control})$

Correlation Coefficients

$X_{1.9}$	−0.29747
$X_{2.9}$	−0.48992
$X_{3.9}$	−0.11189
$X_{4.9}$	−0.24837
$X_{5.9}$	−0.24796
$X_{6.9}$	−0.21938
$X_{7.9}$	−0.17081
$X_{8.9}$	−0.18548

Final Equation in Step-wise Procedure

$$Y = 898.28 - 546.15X_1 + 218.29X_2 - 94.75X_3 + 68.19X_4 + 6.35X_5 + 38.86X_6 + 57.23X_7 + 48.41X_8$$

Order of Selection of Variables in Regression

$X_2, X_6, X_1, X_7, X_5, X_3, X_8, X_4$

Comment

It is believed (based on preliminary studies, subsequent follow-up work, and confirmation by several groups) that coronary heart disease is a gradual process culminating in the overt symptomatology and only then recognizable. There were certain composite features of the coronary heart disease group which were occasionally found in subjects in the putatively normal group, i. e., body build, hereditary history, and serum lipids. It is reasonable to suggest that since coronary heart disease is a gradual process perhaps some of these covert characteristics may prove to be a clue to the underlying disease process and a future cardiac episode. Accurate individual prediction of the probability of experiencing coronary heart disease would make it possible to institute preventive measures to delay or forestall the initial coronary episode. This study is at present being expanded to increase the accuracy of individual prediction which will then make preventive therapy highly selective and realistic. It should be emphasized at this juncture that the present discriminating formula is to be used

only for preselecting subjects for further study of characteristics of coronary heart disease and not for predicting the presence or absence of coronary heart disease in the individual case.

Summary

In a population such as exists in the United States today, where the acute infectious diseases are virtually controlled by advanced public health and chemotherapeutic procedures, there is a tendency toward the development of chronic diseases, especially those of cardiovascular origin. A recent study delineated certain characteristics common to both a control or putatively healthy group of men and a group of men who had experienced coronary heart disease. There appears to be a statistical relationship between proneness toward the disease and certain critical variables. Although this scheme of classification is useful in predicting the proneness to coronary heart disease in groups of persons, the formula will be used as a research tool to preselect persons for further clinical investigation in an attempt to delineate proneness to coronary heart disease in biochemical terms.

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This study was supported by grants from the National Institutes of Health.

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WHY ARE MEN'S CORONARY ARTERIES SO SCLEROTIC?

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Both genetic and dietary factors are discernible in studies of the cause of coronary atherosclerosis. There are individual variations in the extent of development of supportive and contractile structures in the intima; in addition, certain effects of race, sex, and environment appear. Especially striking is the appearance of cholesterol deposits during the first year of life and their subsequent disappearance, alike in rabbits and in children, after weaning. The rate of infiltration decreases in childhood and is accelerated at adolescence in men and after the third decade in women. These considerations, with other results of recent investigations, indicate that the most important factors in coronary disease are nutritional and metabolic and that the greatest fault lies in the masculine love for rich food, alcohol, and tobacco.

Soldiers who have died of coronary disease have shown a striking predisposition to atheromatosis in the large arteries lying in the epicardium, since most of these young men had no other visible atheromas.[1] That this predisposition had an anatomic basis was apparent from the descriptions of the peculiar intimal supports recorded by histologists long ago. These spiral or longitudinal intimal bands, with longitudinal muscle and abundant ground substance, collagen, and elastic fibers, are found in the coronary arteries of many mammals and birds and are present before birth. Individual variation in the extent of development of these structures is great, and it has been suggested that part of the familial susceptibility to coronary disease may be due to familial variations in this anatomic predisposition to local accumulation of lipid as well as in metabolic or dietary factors which would affect over-all arteriosclerosis.[2] It also was noted, and has

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Read before the Section on Pathology and Physiology at the 107th Annual Meeting of the American Medical Association, San Francisco, June 25, 1958.

since been confirmed, that from birth onward males have thicker and more extensive intimal cushions than females.[3]

Comparative Incidence

That men suffer from angina and die from coronary disease earlier in life than women has been obvious to all students of these disorders for 186 years. For almost as many years, pathologists have noted that aortic atherosclerosis is slightly more marked, at any age, in women than in men. During the past decade it was shown that estrogens, in chickens, modify the pattern of plasma lipids and decrease coronary but not aortic atherosclerosis.[4] In men they also decrease and androgens increase the fraction of cholesterol bound to beta lipoprotein. It is this fraction, poorer in phosphorus and lecithin and less dense than alpha lipoprotein, which is found in elevated levels in animals developing atheromas on diets enriched with cholesterol and saturated fatty acids. Its level is also higher in victims of coronary disease than in controls of the same age and sex, that is, in persons in whom the evidence of atherosclerosis has not become manifest. On the basis of such observations, and one report on a great decrease in coronary sclerosis in patients with prostatic cancer who had had more than three months of estrogen therapy, several large studies of estrogen administration in coronary disease are now under way. The review by Oliver and Boyd[6] of 50 such patients, carefully matched with alternate controls and all selected three months after their first infarction, shows no difference in the total of fresh coronary occlusions and coronary deaths after 30 months, when 14% of them were dead and 14% more had survived second infarctions.

Another factor of great importance in sclerosis of the coronary arteries is thrombosis. Most American workers consider this as secondary to ulceration of atheromas, but Duguid and Robertson[7] and other British authorities regard the atheromas of men as organized and degenerated thrombi. These pathologists see no relationship between human arterial disease and the lesions evoked in rabbits, chickens, and monkeys by diets enriched with the lipids which are abundant in the foods enjoyed by prosperous people prone to coronary disease. In any event, a sex difference in mast cells which produce heparin[8] and sex differences in blood coagulability of men and women, as well as of patients with coronary disease as compared to controls,[9] may prove to be additional factors in explaining the epidemiology of myocardial infarction. Since one-third to three-fourths of the Americans who died from this disease, and whose cases were studied in various institutions, had no recent thrombosis, it seems unlikely that much of the sex difference can be due to difference in coagulability.

Two relatively recent studies have put the whole question of masculine predisposition to coronary disease in an entirely new light. One is the report of Keil and McVay[10] showing that in Atlanta, Ga., 37% of the new cases of coronary disease in Negro women occurred before the age of 50 and 66% before 60, while in Negro men the corresponding percentages were 22 and 48. In Caucasian patients at the same hospital only 7% of the cases in women occurred before the age of 50 and 21% before 60, while in Caucasian men the percentages were 14 and 38. Analysis of the material indicated that the reversal of sex difference in Negroes could not be explained by artificial menopause, hypertension, or obesity. In New Orleans[10A] it was noted that aortic atheromas increased rapidly during adolescence in Negro girls, as well as in both Negro and Caucasian males, but slowly in Caucasian females. Differences in estrogen and androgen production or metabolism may affect atherogenesis in females of these two races. Such a possibility is suggested by the report of Bauld and co-workers[11] that men with coronary disease given 17-beta-estradiol excreted more estriol than did control subjects.

At present, all that can be said is that Caucasian males everywhere, and Negro women in Atlanta, are prone to early onset of myocardial infarction as compared with the opposite sex of the same race. This may mean that there are racial differences in the anatomy of the coronary intima or in the effect of estrogens on coronary sclerosis which reverse the classic sex predisposition. It may mean that in some cultures diet, lack of physical activity, and the reaction to emotional stress predispose men, and in other cultures they predispose women, to develop infarction before the sixth decade.

Lober's[3a] study of coronary intimal infiltration from birth to old age in the Minneapolis population provides equally surprising information (fig. 1). Here the rate of change in the intima was found to be greatest in the first year of life, confirming Bragdon's[12] observations on cholesterol deposition in the intima of suckling rabbits and the "suckling's cholesterosis," familiar to European students of human pathology. In rabbits and in children weaned from milk, these deposits vanish quickly. But in the Minneapolis population this infantile disorder is not outgrown, since the diet always contains milk and eggs. The rate of infiltration decreases in childhood and is accelerated at adoles-

cence in men and after the third decade in women. Even in infancy and childhood infiltration is more marked in males. The rate of coronary intimal infiltration reaches its lowest level in girls 10 to 20 years old and more than doubles in males between the ages of 10 and 20, when androgen production and appetite for rich food are maximal. It then falls rapidly for a decade in men and more slowly thereafter, reaching the same level at 70 years as that at 10 years. Most of the decline after the age of 50 must be due to deaths from coronary disease eliminating those with advanced lesions from the entire population.

In girls the rate begins to rise only after the age of 15, and the peak, at 30, though lower than in males of 20, is slightly above that in males all through the fourth and later decades. There is no rise in the rate of infiltration in women at the time

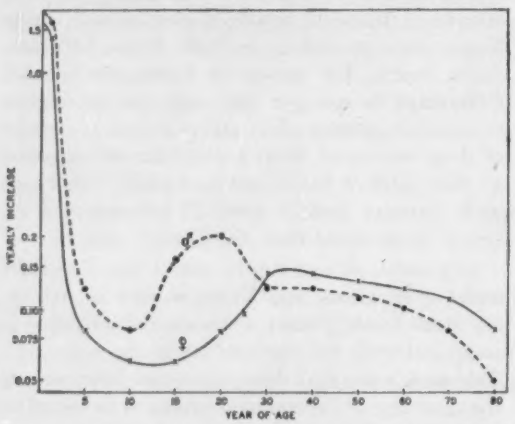

Fig. 1.—Rate of annual increase in coronary intimal infiltration (data from Lober [3a]).

of the menopause. Lober's [3a] data show only a slower fall in elderly women than in men. It is the relatively high rate of infiltration of the intima prior to and in the decade after puberty that accounts for the greater sclerosis noted in Caucasian men as compared with women. The average infiltration rate in women 50 years of age is the same as that in men of 38. Lober's data show that, from the ages of 30 to 50, women form intimal deposits as fast or faster than men, in spite of the low androgen-estrogen ratio at that age.

Coronary atherosclerosis resembles the formation of sand bars in a river bed. In a large river, hundreds of feet of silt are deposited before there is any risk of a ship going aground. Lober's [3a] study shows that the coronary intima, averaging less than 10% of the whole arterial wall at birth, exceeds 50% in men 25 years of age and 70% in men dying of coronary disease. By the age of 30 the average man in Minneapolis was found to have coronary atherosclerosis that was 65% as severe as that of men who died of coronary disease at that age; by the age of 50 the average was 82% of the lethal degree of intimal infiltration. Of course these averages cover a wide range: a few men 50 years of age have scarcely any lipid infiltrations and others dying of accidents or tumor show greater total infiltration than men dead of coronary disease with small but strategically located lesions.

Women at the age of 50 have an average severity of coronary disease 90% as marked as men of that age and 70% as great as that of those who die of coronary disease. Since most of this disease in women developed between the ages of 25 and 50, when estrogen production was high, it is obvious that femininity only confers protection to a modest degree even in Caucasian women; it increases the risk for Negro women in Atlanta. The data supplied by the pathologists lend little support to the idea that suppression of androgens and high levels of estrogens will prevent progress of coronary sclerosis.

Early Development of Disease

The evidence from Minnesota that coronary disease makes great progress in the first two decades of life confirms the findings from studies of American soldiers killed in Korea.[13] Half of the Americans (average age 22 years) had atherosclerotic plaques in the coronary arteries, and 10% had the lumen of one major branch reduced by more than 50%. Enemy soldiers and young Japanese men had no lipid deposits and no atherosclerosis. It is to be emphasized that these Orientals were vigorous young men who fought well, and their arteries showed the intimal supports normal to all human beings, with smooth muscle in abundant ground substance. They had survived two decades of war and revolution and had been under stress far more than the Americans. They had been accustomed to long hours of physical labor but had had no milk products after infancy, little animal fat, and few eggs in their diets. This report, like so many others comparing poor Europeans, Orientals, Africans, or Latin Americans with prosperous North Americans, strongly suggests that men's arteries become sclerotic only when the diet would produce this lesion in a high percentage of men or women, chickens, rabbits, or monkeys. Sex difference in intimal structure or endocrine effects on lipid metabolism may explain in part why Caucasian women in North America have fatal coronary lesions 10 to 18 years after men. On the other

hand, men, with higher metabolic rates, consume much more fat than women, and at puberty far more females than males restrict their diets. The period of high androgen levels and of rapid lipid infiltration of coronary intima coincides with a period when boys and young men have insatiable appetites for fatty food. Blood cholesterol levels are lower than later in life at this time of rapid atheroma formation.

Role of Diet

That the high rate of atherogenesis in adolescent boys and young men may be due largely to diet is suggested by the findings of Young and Pilcher [14] in a careful dietary survey in upstate New York in 1948 (fig. 2). There was almost no rise in the intake of calories, protein, and vitamin A by girls and women between 8 and 30 years of age. These findings disturbed the Cornell University investigators, for they show that, in spite of growth and weight gain, these girls and women held their food intake to levels which, in many, were below those regarded as minimal for good health.

On the other hand, in the males, the intake of calories, protein, and vitamin A rose sharply during adolescence. Vitamin A consumption, a good index of intake of egg yolk and butter fat, doubled between 7 and 15 years, falling rapidly between 15 and 20 and slowly thereafter to a level 25% above that in childhood. The rise in calories in adolescent boys was 40% and in protein 65%, with much less marked decline after maturity than that for vitamin A. While these sex differences in food consumption are undoubtedly dependent on androgen and estrogen, they show that the effect on diet may be more important than on lipid metabolism per se. This sex difference in diet was confirmed for Iowa adolescents by Eppright and Swanson in 1955.[15]

In man, there is rather striking evidence [16] that abuse of alcohol may cause hyperlipemia, thus hastening atherosclerosis and hypercoagulability, just as do diets rich in fat. Abuse of tobacco also appears to accelerate the fatal evolution of atheromas.[17] We have no information on the relative stresses or responses to stress in men and women, but there is no doubt that men still use alcohol and tobacco to excess far more than do women. Thus, the sex difference in age at death from coronary sclerosis may be due as much to external influences as to the differences in coronary intima or to the action of androgens on lipid metabolism or coagulation. This conclusion is in accordance with the fact that in 1772 Heberden's 100 patients with angina included 3 women, in 1896 Osler's series of 40 included only 1, and in 1957 Plotz' compilation of over 2,100 showed a ratio of 4 women to 17 men. If habits of either sex, rather than sex itself, were the decisive factor, the sex ratio would change as habits changed, with time, locality, or race.

Comment

What practical consequences can be drawn from this recent evidence of the relation of sex and other factors to early death from coronary disease? If, as one could have speculated five years ago, masculine vulnerability was due solely to inherent anatomic difference in the coronary intima or to the effect of the steroids which are essential for normal life, the prospects of doing anything would be hopeless. On the other hand, if these inherent factors merely accentuate the effects of exogenous

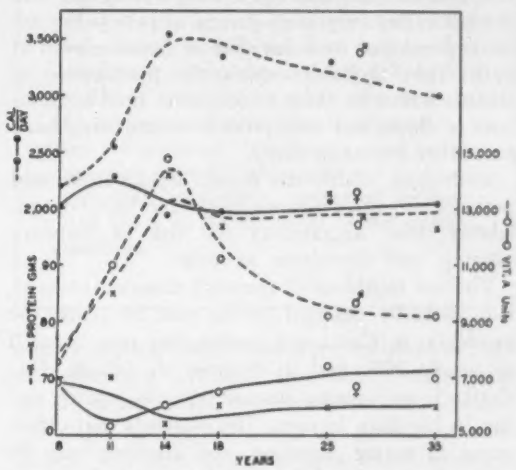

Fig. 2.—Daily food intake of adolescents (data from Young and Pilcher [14]).

influences which are essential to evoke any lesion, or are more potent than sex in accelerating its progress, the physician must do what he can to lay the facts before those who have, or have a high risk of developing, coronary disease. No one can be optimistic about easy success in persuading the obese patient to eat less, the patient with cirrhosis to drink less, or the patient with coronary disease to modify his usual way of eating, drinking, and smoking. Yet for those men who have heavy responsibilities and have had the intimation of swift mortality associated with heart disease it is not so difficult to make radical changes in their way of life. They often find it possible to adopt a regimen which does not interfere with work, play, or sexual activity and involves no outlay of money for drugs or laboratory tests. By

merely avoiding eggs, milk products, and the visible fat on meat they avoid the diet associated with high rates of coronary disease. Fifty-two years ago Osler told his students that in treatment of many cases of coronary disease diet was the "central point." This has been amply borne out by recent research. Fourteen years later he reported that the largest contingent of his patients with angina were men "leading lives of high tension, who eat, drink, and smoke to excess." Perhaps this is still the best clue for those who seek to answer the question, "Why are men's coronary arteries so sclerotic?"

Conclusions

The coronary arteries lying in the epicardium have intimal supports of longitudinal muscle lying in a matrix of connective tissue. These structures, most evident near the branchings of the vessels, adapt them to the change in length in systole and diastole. They vary from person to person but are more developed in males than in females, even at birth. They probably explain the predilection of atherosclerosis for these vessels, since lipid accumulates in them, and they provide an anatomic basis for earlier lesions in males.

Androgens modify the plasma lipid pattern and perhaps also affect clearing factor and blood coagulability, thus aggravating the risk of coronary sclerosis and thrombosis in males.

The sex incidence of coronary disease, however, has markedly changed in the past 50 years; the incidence in Caucasian women has risen from 3 to nearly 20%, and in Negroes in Atlanta, Ga., deaths from coronary disease occur in women earlier in life than in men. This suggests that differences in eating, drinking, and smoking may be major factors in the sex difference in coronary disease. A great difference in eating habits of girls and boys at adolescence, when the masculine rate of atheroma formation is maximal, has been reported by dieticians. The high death rate from coronary disease in Caucasian men, at ages up to 60 years, can be accounted for entirely by the much higher rate of infiltration observed in males from birth to the age of 30. After that time, the rate of deposition of lipid in the intima is as fast in women as in men, but it takes 12 years to overcome the higher incidence gained by males during childhood and adolescence. Stress may precipitate coronary attacks and probably accelerates lipid deposition and coagulation of blood, but in those persons on diets low in animal fats stress does not cause atherosclerosis.

The fault lies not in sex but in the masculine love for rich food, alcohol, and tobacco that in our civilization men die chiefly from coronary disease. As Osler pointed out half a century ago, this is the "nemesis through which Nature exacts retributive justice for the transgression of her laws."

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EFFECT OF ISONIAZID IN ANGINA PECTORIS

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Isoniazid was administered over periods of three weeks to 20 patients who had been known to have angina pectoris for at least a year. The dosage was 300 mg. a day in three divided doses of 100 mg. each. The patients were instructed to continue taking nitroglycerin as needed, but all other coronary vasodilators were withdrawn. Ten patients completed the three-week course without decreased anginal pain or increased capacity for effort. Eight others did not complete the course, either because of disabling side-effects or because they saw no improvement. Only two patients felt better, and only one of these noted any return to his pretreatment state when he stopped taking the isoniazid. The dosage used in this series of patients, while sufficient to cause disturbing side-effects, appeared to have little value in the treatment of the anginal syndrome.

The recent reports [1] of the striking relief of anginal pain by iproniazid (1-isonicotinoyl-2-isopropylhydrazine phosphate) (Marsilid) have stimulated interest in the possible use of its less toxic analogue, isoniazid (isonicotinic acid hydrazide), for this purpose. A single report [14] has described significant improvement in the anginal syndrome in one-third of patients treated with isoniazid. The purpose of the present study is to further evaluate the effect of isoniazid in angina pectoris.

Materials and Methods

The clinical material used in this study comprised 20 patients from an office practice devoted largely to cardiac disease. All of the patients had been known for at least one year, and in most of the patients angina pectoris due to coronary artery sclerosis had been present from 1 to 10 years. The diagnosis was established by the typical history of chest pain on effort. In all patients, the anginal syndrome was stable at the time of the study. Patients in whom serial electrocardiograms or history suggested acute coronary insufficiency or impending myocardial infarction were excluded. The patients ranged in age between 53 and 78 years, with 17 between the ages of 60 and 72. There were 15 males and 5 females, approximating the usual ratio of males to females with coronary artery disease in this age group. Three had significant hypertension and 17 were normotensive. Diabetes mellitus was present in two. Eight of the patients had sustained at least one previous myocardial infarction. Nitroglycerin requirement varied from occasional use to use as frequently as 35 times a day. The resting electrocardiogram taken prior to isoniazid therapy was abnormal in 13 patients, revealing evidence of previous myocardial infarction or of T-wave and S-T-segment deviations without evidence of previous infarction. A normal resting electrocardiogram was present in the remaining seven patients in whom the diagnosis was established by the classic history alone.

Isoniazid was administered in a dosage of 300 mg. a day in three divided doses of 100 mg. each for a period of three weeks. The patients were instructed to continue taking nitroglycerin as needed, but all other coronary vasodilators were withdrawn. Digitalis, diuretics, and other measures to control congestive heart failure were continued as indicated. On receiving the isoniazid, the patient was informed only that it was a drug found useful in some patients with angina, whereas it was not found beneficial in other such patients.

Evaluation of the effect of isoniazid was based purely on the subjective response of the patient with respect to change in the capacity for effort and the frequency of anginal attacks. If, by these criteria, improvement was noted at the completion of the three-week course of isoniazid, the drug therapy was continued for an additional three weeks. If improvement was sustained for six weeks, the drug therapy was then stopped to determine the effect of its withdrawal.

Results

Ten of the 20 patients completed the three-week course of isoniazid therapy but observed no improvement whatsoever in their anginal pain or capacity for effort. Four additional patients also found the drug to be ineffective but were com-

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pelled to stop the medication after only one to two weeks because of the occurrence of disturbing side-effects. One patient developed intensification of pain two days after starting isoniazid therapy and was found to have sustained a fresh myocardial infarction by electrocardiogram and clinical course. One patient noted no improvement in his anginal pattern after two weeks of isoniazid therapy and stopped taking the drug. Two patients noted slight improvement in anginal pain and slightly increased capacity for effort but were compelled to stop taking the drug because of unpleasant side-effects. One patient noted partial improvement in his anginal syndrome after three weeks of isoniazid therapy and the therapy was continued for an additional three weeks, during which the improvement was maintained. However, on discontinuation of the drug, he failed to notice any return to his pretreatment state. This is in marked contrast to the reported experience with iproniazid in which improvement persisted only as long as the therapy was continued, with recurrence of symptoms within days after discontinuing it. One must therefore consider the result in this patient equivocal at best. A single patient noted diminished frequency of pain and slightly increased capacity for effort which was maintained through six weeks of isoniazid therapy and which reverted to the pretreatment state when the therapy was stopped.

Side-effects.—Side-effects were observed in four patients (20%). Diarrhea occurred in two patients and nausea in two; one patient each developed dizziness, pyrosis, and generalized pruritus. The effect of isoniazid on the blood pressure was not impressive as compared to the reported effect of iproniazid in this respect. In seven patients a fall in the systolic pressure occurred; in four it was minor (10 to 20 mm. Hg) and in three moderate (over 20 mm. Hg). A minor fall in the diastolic pressure was noted in four patients (10 to 15 mm. Hg), but in none was there a marked fall. Neither syncope nor faintness while standing, suggestive of orthostatic hypotension, was encountered. Other side-effects, observed in patients receiving iproniazid, such as nervousness, impotence, paresthesias, difficulty with micturition, or evidence of hepatic dysfunction, were not observed in this series.

Effect on Electrocardiogram.—After the use of isoniazid, the resting electrocardiogram remained unchanged in 16 patients. In three patients minor T-wave changes, unassociated with S-T-segment deviations, were noted. The remaining patient developed the electrocardiographic pattern of acute anteroseptal myocardial infarction two days after starting isoniazid therapy. The causal relationship of the drug to this event cannot be ascertained.

Comment

Since the first published reports by Cesarman [2] and by Cossio [3] on the dramatic effect of iproniazid on anginal pain, other investigators [4] have confirmed their findings. Cesarman reported excellent results in all of 72 patients receiving iproniazid, and Cossio reported complete or almost complete remission in one-third of 120 patients and reduction in frequency, duration, and intensity of pain in another one-third. In Master's [1e] series of 74 patients 13 were completely relieved of angina, and in 28 patients angina was almost completely relieved. Towers and Wood [1f] described dramatic improvement in 17 of 40 patients treated with iproniazid and significant improvement in an additional 14.

Reports dealing with the use of isoniazid in angina pectoris are less numerous and the results less impressive. Cossio [1d] reported that one-sixth of 35 patients obtained complete or almost complete relief from isoniazid and significant improvement occurred in an additional one-sixth. Substitution of isoniazid for iproniazid provoked a recurrence of anginal pain in one-half of his patients, although he states that the pain was occasionally less frequent and less severe. Where isoniazid proved ineffectual in relieving anginal pain, the substitution of iproniazid for isoniazid resulted in subsidence of pain in one-half of these patients. In the study of Towers and Wood [1f] isoniazid was substituted for iproniazid in one patient and found to be ineffective. In the present series of 20 patients, using the same dosage of isoniazid as Cossio did (300 mg. daily), we found the drug to produce a significant, sustained improvement in a single patient only. An additional two patients who reported slight improvement were compelled to stop using the drug because of the occurrence of unpleasant side-effects. On the basis of this small series we concluded that isoniazid has little value in the treatment of angina pectoris.

The mechanism of action of iproniazid and isoniazid on the anginal syndrome is not as yet clear. Most investigators [5] feel that these drugs have no effect on the fundamental causes or natural history of coronary artery disease. Cesarman,[2] however, noting a correlation between subjective improvement on iproniazid and electrocardiographic im-

provement in many patients, believes that iproniazid has a direct action as well as a symptomatic one on the pathogenesis of angina pectoris.

Among the possible mechanisms of action proposed are (1) central nervous system stimulation with general elevation of mood and increase in the pain threshold [1e]; (2) a selective analgesic action on pain of ischemic origin, perhaps by selective block of the pain-producing "P substance" of Lewis [3]; (3) inhibition of monoamine oxidase causing an increased amount of catecholamines in the myocardium as well as an accumulation of serotonin in the brain, the latter resulting in central nervous system stimulation [6]; (4) inhibition of other enzymes involved in oxidative processes which either save oxygen or increase its utilization [1b]; and (5) increase in coronary flow, which has been demonstrated in vitro in the isolated, perfused cat and guinea pig heart.[6a]

In attempting to explain the relative ineffectiveness of isoniazid in angina pectoris by comparison with iproniazid, these differences in characteristics may be significant: Isoniazid produces much less central nervous system stimulation, elevation of mood, and euphoria than does iproniazid. Isoniazid is a relatively weak inhibitor of monoamine oxidase, producing a less marked rise in myocardial catecholamines than does iproniazid. Finally, using the perfused cat heart, Pletscher and Pellmont [6a] have demonstrated that isoniazid definitely has a lesser effect on coronary flow than iproniazid.

Side-effects

The occurrence of frequent and severe toxic effects due to iproniazid has tempered the earlier enthusiasm about the value of this drug in angina pectoris and prompted the evaluation of the less toxic isoniazid. In iproniazid-treated patients, hypotension, particularly in the standing position, has been noted frequently. Syncope with death,[1d] cerebral thrombosis,[7] coronary artery occlusion,[8] and coronary insufficiency with subendocardial necrosis [1e] have been observed. Faintness, weakness, and brief syncopal episodes have been described. Toxic hepatitis due to iproniazid, with jaundice, extensive hepatocellular necrosis, and sometimes death, is being reported with disturbing frequency.[8] Our own series shows that isoniazid, by comparison, is a significantly less toxic drug than iproniazid, and this confirms earlier findings.[9]

The effects of isoniazid on blood pressure were relatively insignificant and the deleterious effects due to a marked fall in blood pressure were therefore not observed. The side-effects encountered, although not serious, were sufficiently disturbing to limit the use even of isoniazid.

Summary and Conclusions

The effect of isoniazid in angina pectoris has been studied in 20 patients. In 16 patients (80%), isoniazid had no effect on the anginal syndrome; in 2 patients (10%) slight improvement in the capacity for effort was noted, but side-effects compelled discontinuation of the drug; in one patient (5%) an equivocal result was obtained; and in only one patient (5%) was sustained improvement noted while he was receiving isoniazid. The effect of isoniazid in relieving anginal pain is considerably less than the remarkable results reported for iproniazid. There are several possible explanations for this difference in effect. The side-effects of isoniazid are less frequent and considerably less serious than those reported for iproniazid. Isoniazid appears to be of little value in the treatment of the anginal syndrome.

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INFLUENCE OF AIR CONDITIONING ON HOSPITALIZED PATIENTS

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A comparative study of circulatory and respiratory functions was carried out in 163 female hospital patients, 88 of them being in an air-conditioned ward while 75 were in a warm and humid ward affected by the outside weather. The numerical data were supplemented by systematic notes on appearance and behavior of the patients. Although the average age of the patients in the air-conditioned ward was five years greater, their mean systolic blood pressure was lower, pulse rate slower, and oral temperatures lower than those of the patients in the non-air-conditioned ward. Three cases are described in detail to show that in some situations the transfer from the warm, humid ward to the air-conditioned ward was decisive in bringing about the patient's recovery. A fourth case exemplifies the occasional unfavorable response to the change; there were nine instances of this. The possibility that the patient might benefit from an air-conditioned environment should be kept in mind, especially in cases of heart disease.

During the tropical New Orleans summers of 1957 and 1958, cardiac output and manifest work of the right and left ventricles were measured in a warm and humid ward and in a cool air-conditioned ward.[1] The cardiac output was greater in every patient in the warm and humid ward, the mean being 51% and the range 21 to 144%. In most instances the manifest work of one or both ventricles was also increased. The failure of manifested work to increase in some cases was due to an associated decline in pulmonary and/or systemic blood pressure. To obtain more general clinical information, including such less objective factors as comforts and psychological states, each patient was observed at the bedside and carefully questioned daily. This report presents the results of this study and emphasizes the benefits of air conditioning the environment of the ill or debilitated patient.

Material and Methods

All the patients were adult Negro females who were admitted on a rotational basis to adjacent air-conditioned or non-air-conditioned wards at the Charity Hospital, New Orleans. These studies were carried out from July 1 to Aug. 15 at the height of the tropical summer weather of 1957 and 1958. A total of 88 patients were studied on the air-conditioned ward and 75 patients on the open warm and humid ward exposed to the outside weather. The patients were seen twice daily, at 8 a. m. and 4 p. m. Blood pressure, pulse rate, respiration rate, and body temperature were recorded. General appearance was observed, with special attention to restlessness, irritability, sweating, and general well-being. The routinely recorded notes of the nurses, medical students, and various attending physicians were studied. Comments volunteered by the patients, observations of other clinicians, and comments from the nursing staff were also noted. The ward temperature and relative humidity were recorded daily at 8 a. m. and 4 p. m. with a sling psychrometer.

Results

Mean blood pressure, body temperature, pulse, and respiratory data are summarized in the table.

Air conditioning the environment of the hospitalized patient was found to be favorable in 71 patients, unfavorable in 9, and indifferent in 8. Favorable response was particularly evident in patients with congestive or coronary heart failure, bronchial asthma, and chronic diseases with debilitation. The following cases illustrate benefits of air conditioning.

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Report of Cases

CASE 1.—A 46-year-old female was admitted to the hospital on July 3, 1958, because of congestive heart failure associated with orthopnea, cyanosis, and anasarca, including edema of the face and arms. The patient had previously had cardiac catheterization studies and was found to have a bidirectional shunt through an atrial septal defect. She was admitted to the warm ward in a moribund state, too orthopneic to lie back even a few degrees and two dyspneic to talk. The blood pressure was 100/80 mm. Hg, pulse rate 110 per minute, respiration rate 28 per minute, and temperature 98.4 F (36.9 C).

The usual measures for the treatment of congestive heart failure were used, including phlebotomy, with only slight improvement. The patient remained restless, sweated profusely, complained of discomfort from the heat, and had continued tachy-

cardia. On the third hospital day it was decided to transfer her to the air-conditioned ward. The improvement in the patient's condition within 24 hours was most impressive. This improvement continued; three days later she was able to lie almost horizontal, and within a week she was able to walk around the ward. Her pulse rate had slowed to 76 per minute, the venous pressure was 160 mm. H_2O, she lost 28 lb. (12.7 kg.), but the cyanosis was unaltered.

Comment.—For the three days that this patient remained on the warm and humid ward there was no improvement in her health. She was always drenched with perspiration, was extremely dyspneic and restless, and was apparently suffering from the heat. On transfer to the air-conditioned ward, the discomfort from the heat disappeared and sweating ceased. She felt better, was more comfortable, and was able to relax. There was a gradual and steady improvement in her health so that within one week she was able to walk with minimal difficulty. As was found in previous studies,[1] the cool and comfortable air-conditioned environment reduced the demands on her myocardium, thus reducing cardiac output and cardiac work so that her heart rested sufficiently to permit compensation.

Case 3.—A 38-year-old female was admitted to the air-conditioned ward on July 22, 1958, because of chronic renal disease, congestive heart failure, and mild uremia. Several years earlier she had had a nonfunctioning kidney removed, in an attempt to relieve her hypertension, without benefit. For several weeks prior to admission the patient noticed progressive dyspnea, swelling of the ankles, nausea, and vomiting. She was receiving 100 mg. of digitalis leaf daily. Blood pressure was 190/120 mm. Hg, pulse rate 102 per minute, respiration rate 38 per minute, and temperature 97.6 F (36.4 C).

The patient appeared to be a thin, chronically ill female who was in acute respiratory distress. Fine rales were present throughout the bases of both lung fields, and a loud harsh systolic murmur was audible at the apex. The heart was large, and venous pressure was 300 mm. H_2O. Digitalis therapy was

Mean Clinical Data Obtained in Air-Conditioned and Non-Air-Conditioned Wards

Ward	Patients, No.	Determinations, No.	Mean Age, Yr.	Mean Blood Pressure, Mm. Hg	Mean Pulse Rate/Min.	Mean Respiratory Rate/Min.	Mean Temperature, F	Ward Temperature, F				Mean Relative Humidity, %
								Day		Night		
								Mean	Range	Mean	Range	
Air-conditioned	88	7,680	48	130/77	83.5	21.5	98.4	76	(71-76)	75	(72-76)	65.7
Non-air-conditioned	75	6,444	43	135/76	89.5	21.5	98.7	87	(90-79)	84	(80-88)	82.8

Case 2.—A 25-year-old female was admitted to the hospital on July 31, 1958, because of status asthmaticus. The patient had been treated for approximately eight hours in the emergency room for severe bronchial asthma. Because of failure to respond to therapy and apparent suffering from the heat with marked sweating, restlessness, and irritability, she was admitted to the air-conditioned ward with the hope that she would benefit from the comfortable environment. The blood pressure was 110/80 mm. Hg, pulse rate 122 per minute, and temperature 100.8 F (38.2 C).

The patient was extremely tense and agitated. She was acutely dyspneic, and both lung fields contained wheezes and coarse rales. The patient arrived on the ward at 11 p. m. without alterations in therapy. She was asleep within two hours, and by morning she was no longer dyspneic, although a few rales remained in both lung fields. She stated that while in the warm and humid emergency room she felt "as if the walls were closing in around her," while on the cool ward breathing was easier and she was able to relax.

Comment.—Several factors probably influenced the improvement made by this patient when she was admitted to the air-conditioned ward. The calmness, thermal comfort, and quietness of the ward must have been conducive to psychological and physical relaxation, which decreased the demands for oxygen and breathing. The low humidity, as well as the lessening of allergens due to filters in the air ducts, may have removed the source of her difficulty. The benefits of the air-conditioned ward were dramatically displayed.

continued, a mercurial diuretic was administered, and restriction of salt intake was begun. Within several days the patient was much improved. The venous pressure had declined to 120 mm. H_2O. The blood urea nitrogen level decreased from 68 mg. % on admission to 40 mg. % and remained at about this level for the remainder of her hospital stay. The nausea and vomiting gradually subsided, and the patient's appetite improved. She remained in hospital for one month, during which time she improved in health and gained in strength. No attempt was made to reduce her blood pressure at this time.

Comment.—This patient always appeared to be chronically ill and debilitated. She stated that her present difficulties began with the onset of the warm summer weather, when she began to feel uncomfortable, perspired a great deal, and became anorexic. She could no longer lie in bed and would sit in a chair all night near an open window fanning herself "for breath." After the first few days of treatment on the air-conditioned ward she no longer had such difficulties. She rested and slept well at night and on many occasions remarked that the coolness of the ward was responsible for her improvement and apparent well-being. A patient with

little cardiac or renal reserve could develop failure of both of these organ systems under the stresses imposed by a hot and humid environment and improve when the environment stress is removed.

Unfavorable Response

While most patients were more comfortable and experienced improvement in their clinical course in the cool environment, this was not always true. An occasional patient complained that she "felt as if she had a cold." A few patients in congestive heart failure seemed to benefit from the cardiac rest afforded by the cool atmosphere in terms of a slower pulse and less dyspnea but complained of discomfort from the coolness of the ward and the inability "to get warm." Some patients were comfortable during the day but were too cool at night. Since it is not possible to regulate the environmental temperature and humidity to satisfy the differences in needs for comfort among patients, this was usually solved by providing blankets or sheets for covering. Nevertheless, an occasional patient did not tolerate the air-conditioned environment well.

CASE 4.—A 31-year-old female was admitted to the hospital on July 1, 1958, for diagnostic studies because of a chronic pericardial effusion. The patient's symptoms consisted of mild shortness of breath and precordial pain. Venous pressure was 130 mm. H_2O, and the S-T segments were elevated in V_4, V_5, and V_6. Blood pressure was 120/85 mm. Hg, pulse rate 88 per minute, respiration rate 21 per minute, and temperature 99.2 F (37.4 C).

The patient complained of inability to keep warm and of a constant "stuffiness in her nose." Later she said that she had "caught cold" because of the air conditioning. She slept in a non-air-conditioned warm ward at night and sat in a non-air-conditioned solarium during a large part of the day. Her symptoms did not improve during the hospital stay.

Comment.—This type of reaction to an air-conditioned environment was unusual in the patients observed (only nine had an unfavorable response). It is perhaps surprising that more patients did not behave similarly, since the patients studied were indigenous to this area and acclimatization to the tropical weather was expected. However, in previous studies [1] no subject failed to demonstrate an increase in cardiac output when in a hot and humid environment, so that total acclimatization, at least in terms of cardiac output, must be the exception rather than the rule.

Comment

From the medical standpoint, a cool air-conditioned environment was beneficial to the invalid in large part because he slept more soundly, longer, and more restfully. The dyspneic patients found it easier to breathe, thus relieving anxiety and apprehension. Sweating with associated loss of fluid and electrolytes was eliminated as a clinical problem. The patients rested in bed more satisfactorily and were more cooperative and calm and less restless than on the warm ward. The management of atopic patients was improved probably in part because allergens were filtered out of the environment.

The elimination of sweating is an important factor in the management of the patient with congestive heart failure, for when it becomes necessary to maintain thermal equilibrium by sweating the cardiovascular system has been shown to be more actively at work.[3] Previous studies done at the Charity Hospital on 16 patients with congestive heart failure showed that severe dyspnea, rales, and gallop rhythm developed in all but 4 of these patients when they were exposed to a hot and humid environment (104 F and 85% relative humidity).[3]

Nursing was made easier by the cooler atmosphere of the air-conditioned ward. The suppression of perspiration produced comfort to the patients, nurses, maids, and all attendants and reduced objectionable odors. The quietness induced by the ward being closed was conducive to rest and relaxation. Linen remained clean longer and did not wrinkle readily, tending to prevent and improve the management of decubitus ulcers. The attitude of all personnel in contact with the patients was better; the general morale of all people in the ward was improved. The quiet, calm, and relatively peaceful nature of the air-conditioned ward increased the work efficiency of all those concerned with patient care.

The lack of statistical significance between the differences in blood pressure, pulse, and respiration of the patients on the two wards indicates the unreliability of these parameters in assessing the more subtle effects of air conditioning on the patient. Even in patients whose cardiac output was measured and found to increase, the pulse and respiratory rates did not change significantly.[1] In some patients one or both even increased in the cool environment. However, in individual patients the changes in vital signs noted for the cool and warm and humid environments were fairly large. This was particularly true in patients with heart disease (case 1). Therefore, it is necessary to individualize the influence of air conditioning for each person.

There were great contrasts between the two wards. For example, on the cool ward at 7 a. m. most patients were still asleep. They slept frequently during the day, and there was a general appearance of calm and quiet with outside noises reduced or eliminated. At the same time, on the warm ward at 7 a. m., most patients were sitting near their beds or walking around. Their skins appeared greasy and sweaty. Many had spent a restless night, sleeping for only short periods. Some complained that they were cooler and more comfortable at home.

The bed linen of many patients was damp with perspiration. On days when the temperature ranged between 80 F and 82 F and the relative humidity remained below 65%, most patients were fairly comfortable. However, during July and August in New Orleans such moderate temperature and relative humidity were rare.

Summary

At the Charity Hospital, New Orleans, 88 patients were studied on the air-conditioned ward and 75 patients on the open warm and humid ward exposed to the outside summer weather. Some of the less objective benefits of air conditioning the environment of the sick room, from both the medical and nursing points of view, were that air conditioning eliminated sweating, fostered a calm and quiet atmosphere, improved morale of both patients and attending personnel, removed allergens from the environment, and increased the tolerance of enforced bed rest. Most patients were greatly benefited by air conditioning, but the therapeutic results were not dramatic in all patients. There was a wide range of response of the patients, with the majority deriving benefit from the cool environment and only a few manifesting an unfavorable response. Air conditioning the environment of the sick room of a debilitated and chronically ill patient was found to be a useful adjunct to therapy which has not received the emphasis in medical literature that it deserves. This was particularly important for the patient with heart disease.

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This study was aided by grants from the U. S. Public Health Service, the Upjohn Company, and the Thibodeaux Foundation.

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HEADACHES IN THE ANTARCTIC

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Headache is a frequent complaint at isolated antarctic bases. It was blamed in 50% of 37 sick call entries in this study. The medical officer found that few if any headaches could be attributed to eye strain, the cold, poor ventilation, sinus trouble, constipation, or similar factors. Interrogation indicated that headache was apparently related to the sharply felt need for careful control of aggression under circumstances of enforced close personal association. The headaches occurred more frequently in the civilian and officer group than in the enlisted group.

During two tours of American Antarctic International Geophysical Year installations in 1957-1958 in connection with a study of the adaptation of personnel to polar conditions, there was a seeming frequency of complaints of headache. Although headaches seemed common at most stations, one small base was selected for a close look at the problem. This isolated station was staffed by 12 civilian scientists and 12 military support personnel. Group morale was high. Some observations relative to the headache problem follow.

The sick bay log revealed only 37 entries for any cause during the 10-month period from the date on which the group became located there to the date of my visit. Of the 37 entries for any cause, 19 (50%) were for headaches described by the station medical officer as "severe." Eight men, one-fourth of the station complement, accounted for these 19 entries. Six of the eight were civilian scientists, that is, half of the civilian complement. The medical officer stated that entries were made for headaches only when the symptom was severe enough for him to suggest that the sufferer take time off from his duties and rest. He further stated that these headache entries represented only a fraction of the total number of headache complaints of personnel who made informal nonrecorded visits to sick bay for aspirin or other analgesics.

All the sufferers from severe headache had indicated that their headaches were in varying degrees more frequent and severe during their stay in the antarctic than before. Of the eight major sufferers, three said that they had had fairly frequent and sometimes severe headaches prior to their antarctic experience, and the others said that they had rarely experienced headaches.

There was insufficient time to obtain a detailed description of these headaches, but they appeared to present "vascular" and scalp muscle tension manifestations, with one man experiencing typical migraine. Cold was not a factor related to these headaches at this station (or others). Most of the headaches occurred during the winter months when there is comparatively little outside activity; in fact, most of the headaches were initiated and continued indoors. About one-third observed some relationship between their emotional state and occurrence or aggravation of headaches. The others were not aware of any such relationship and either could offer no explanation for their occurrence or gave explanations varying from general fatigue to eye strain, sinus trouble, and insomnia.

The station medical officer felt that few if any of these headaches could be attributed primarily to eye strain, poor ventilation, fatigue, cold, hunger, sinus trouble, constipation, or similar factors. The medical officer, who was also officer in charge of the station, said that all carbon monoxide detection devices were in order throughout the year and that he saw no reason to believe that low-grade carbon monoxide intoxication could have been a factor.

In addition to the more detailed investigation made at this station, the following observation was made at another isolated station the year before. At that station, of the 9 civilians and 4 officers attached, 6 complained of fairly frequent headaches, while of the 21 enlisted men whose records were available for review, only 3 complained of the symptom to the degree warranting an entry in the sick bay log.

Comment

These observations indicate a general frequency of headache at some stations in the antarctic, especially at the more isolated bases, and a tendency for this symptom to occur more prominently in the officer-civilian group. Psychological factors are probably important. A relationship often exists between controlled (repressed and suppressed) anger and the occurrence of this symptom. It is a striking fact, also, that at these small stations there was a remarkable absence of either physical fights or hostile-angry arguments. At the station on which this report is largely based, not one instance of fisticuffs occurred during the 10-month period and violent angry arguments were extremely rare.

When it is considered that the base comprised a group of young men of widely diverse background and interests, thrown together in enforced close personal association for a period of almost a year, the absence of such overt expression of hostility may seem astonishing. But a closer examination of the situation reveals the logic of this apparent tranquility. There was a conscious recognition of the necessity of control and of avoiding open breaks. Each man recognized that he was dependent on the goodwill of the "next man" and of the group as a whole in this "tight little world" for his own vital feelings of acceptance, security, and worth and that overtly expressed antagonisms represented too much risk when other sources of gratification of these needs were not available for an entire year. This abnormal control effort, whether it took the form of suppression, repression, distanciation, intellectualizing, philosophizing, or what not, could not be achieved without some cost in terms of accumulated tension.

The enlisted group were perhaps more fortunate in having more varied methods of handling the problem. For example, there was violent swearing (without, however, as much emotion as the content of their polemic would seem to call for), vigorous horseplay, loud but essentially good-natured complaining, and an interesting technique of exchanging frank and fearful insult, often quite personal and to the point but apparently rarely reacted to with much if any anger, as if there were a tacit mutual recognition of the function of the exchange. The more sophisticated scientist-officer group were more limited in the effective techniques available and were perhaps under greater self-imposed necessity for careful control of their aggressions: hence their preponderance of headaches.

Summary

Headaches are a frequent complaint at isolated antarctic bases and appear related to the sharply realized necessity for careful control of aggression under circumstances of enforced close personal association for a period of a year. These headaches occurred more frequently among the more sophisticated civilian and officer group, probably because of self-imposed higher level of restraint, as well as their inability to utilize certain techniques for dissipating their aggressions which were available to the enlisted group.

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Lieut. Peter P. Ruseski, M. C., U. S. Navy, medical officer of the station studied, provided the information on which this report is based.

FUNCTION OF A METROPOLITAN CYTOLOGY LABORATORY

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Examination of cervical and vaginal smears for cytologic evidence of cancer has become frequent since its introduction in 1943. The number of examinations done in a single laboratory increased from 5,957 in 1950 to 27,602 in 1957. Follow-up studies have been possible on 1,044 women from whom vaginal smears were obtained in 1950. Experience has led to improved techniques and more reliable criteria for interpreting results. In one series the number of false-positives, judged by subsequent tissue studies, was 3.5% and the false-negatives 7%. Comparison of cytological results with other clinical and laboratory data has also been possible in 27,602 cases in a recent 12-month period; in this series a doubtful or positive smear led to the diagnosis of unsuspected uterine cancer in 77 cases. It is believed that the value of large-scale cytological screening of women by this technique is well demonstrated by the results here reported.

The publications of Papanicolaou,[1] Papanicolaou and Traut,[2] and Meigs and others [3] in the early and middle 1940's produced national interest in exfoliative cytology as an aid to the early diagnosis of cancer, particularly uterine cancer.

As a local manifestation of this interest a cytology laboratory was instituted at the Cincinnati General Hospital in 1947. Its sphere of activity was limited to patients of the Cincinnati General Hospital, and its personnel consisted of one house officer. After two years it was felt that the work of the laboratory was sufficiently promising to warrant extending its facilities to the practicing physicians of the community. Subsequent growth may be estimated from the steadily increasing volume of work.

For example, in 1950 there were 5,957 cervical and vaginal smears performed by the laboratory; in 1951, 7,789; in 1952, 9,268; in 1953, 12,730; in 1954, 12,499; in 1955, 14,259; in 1956, 20,822; and by 1957, 27,602. The purpose of this paper is to consider briefly the mechanics involved in the operation of such a laboratory, some of the problems encountered, and some of the results obtained.

Operation

At the present time the laboratory personnel consists of a physician, who serves as director and reviewing cytologist, and three technicians, whose duties include the staining and mounting of smears, the screening of these smears, and the large amount of secretarial work incidental to the function of the laboratory. We feel that this is the minimum number of technicians needed to handle the current work load and that a fourth technician will be necessary in the near future.

Interested physicians obtain mimeographed instruction sheets and request forms for cytological examination from the laboratory (see figure).

Equipment for taking the smears and fixative are supplied by the individual physician. The routine use of ground-glass "write-on" slides reduces identification difficulties and significantly lessens the time required to process smears. No direct recommendations are made as to the type or number of smears done on the individual patient. The trend, however, has been to the use of the Ayre spatula [4] in place of the bulb and pipet. This, too, has been helpful in expediting the work of the laboratory. Diagnosis in the case of a vaginal smear (made with bulb and pipet) may depend on only one or two cells. When abnormal cells are present in the cervical smear (made with the Ayre spatula), they are almost always present in abundance. It is argued that vaginal smears screen more potential cancer sites. As counter-argument it may be pointed out that while epidermoid carcinoma of the cervix uteri is a common lesion, adenocarcinoma of the cervix is uncommon, corpus carcinoma is very uncommon outside of specific age groups, and diagnosis of tubal or ovarian cancer by smear is rare. If the physician is particularly interested in screening these latter areas, an endocervical or caval aspiration may be used.

Smears are fixed in the physician's office for at least one-half hour and are then permitted to dry. Smears would be of better quality if kept wet from the time of fixation until staining; however, the practical advantages of drying, insofar as transportation and processing are concerned, outweigh the slight deterioration in slide quality. The bulk of smear slides reach the laboratory through the mail.

Smears, after being stained according to the Papanicolaou trichrome method, are mounted and screened by the laboratory technicians. Ink dots are used to mark questionable cells. It might be noted in passing that the use of wide-angle instead of standard ocular lenses permits a much larger microscopic field and therefore speeds the screening process.

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The smears are held for review by the cytologist if they (1) contain atypical cells of any kind; (2) are from patients with symptoms suggestive of carcinoma (e. g., intermenstrual bleeding); (3) are from patients concerning whom the attending physician has indicated some suggestion of cancer; or (4) are of any secretions originating outside the female genital tract.

Smears are categorized as negative, doubtful, or positive. No effort is made to identify the source of malignant cells or to distinguish between invasive and preinvasive carcinoma of the cervix. The cytologist may have an opinion about these things and often makes a private guess, but the ultimate decision must be left to the clinician and the pathologist. Rarely, unless asked, do we suggest a plan of study for the patient with a doubtful or positive smear. The clinician is in a better position to exercise such judgment than the cytologist.

Errors and Safeguards

In connection with the reporting of smears, it is of paramount importance that the laboratory firmly establish, in the minds of the clinicians to whom it is reporting, the limitations of the method. Hysterectomy done because of a positive genital smear and without biopsy confirmation, in a patient whose uterus contains no cancer, is a calamity always in the back of the cytologist's mind. Tantamount to this is the case of the woman who is subjected to hysterectomy under similar circumstances and whose cervix is subsequently found to contain grossly invasive carcinoma. Conversely, false-negative smears can lead a practitioner who does not understand the possibility of such reports into a do-nothing policy in the case of the patient with symptoms of genital carcinoma. The best way of avoiding these unpleasant occurrences is to discuss the technique in hospital staff meetings or over the telephone with physicians who have just started using the laboratory facilities. One specific safeguard used in our laboratory is the appendage to every negative report on a genital smear taken from a patient with postmenopausal bleeding of the following notation: "A negative smear in the postmenopausal bleeder does not rule out endometrial carcinoma." This is done because of the high incidence of endometrial carcinoma in patients with postmenopausal bleeding and the relatively higher incidence of false-negative smears in endometrial as opposed to cervical carcinoma.

It might be well, at this point, to consider some of the commoner causes of erroneous cytological diagnosis. Laboratory error may be divided into two main groups—negative error, in which the cytologist returns a negative report when the patient actually has a malignant lesion, and positive error, in which the cytologist returns a positive report and the patient has no demonstrable cancer. The clinician who understands the possibilities and sources of these errors is in a much better position to use the technique intelligently.

Factors in Negative Error

Misinterpretation.—To err is human, and the cytologist will make his share of interpretative mistakes. However, misinterpretation is not as common a source of negative error as might be expected. The finding of cellular atypia of any degree, if noted appropriately by the cytologist, will result in repeat smears and, if the changes are persistent, biopsy. When the pipet method is used faulty screening may miss the one or two abnormal cells on a slide, but when the Ayre spatula is used the abundance of atypical cells on the slide precludes this accident in practically all epidermoid cervical lesions.

Poor Choice of Application.—Theoretically study of the genital smear should, within the limits of its known accuracy, enable one to diagnose uterine cancer whether the latter is symptomatic or not. However, the major function of the smear is to arouse the suspicion of cancer where none previously existed; and when this has already been suggested by symptoms, the smear as a test for cancer no longer has a valid function. Poor choice of application means the use of the smear in cases in which other, more specific diagnostic measures are

Request for Cytologic Study
Cytology Lab. A-3, Cin'ti Gen. Hosp. DATE: Lab. No.
PT'S. NAME PLEASE PRINT Age Sex
PHYSICIAN'S NAME
AND ADDRESS
TYPE OF SMEAR: CERVICAL ☐ VAGINAL ☐ OTHER
L.M.P. ? ABNORMAL BLEEDING
REMARKS:
DO YOU SUSPECT CA: YES ☐ NO ☐
REPORT: NEGATIVE ☐ DOUBTFUL ☐ POSITIVE ☐
REPEAT: AT ONCE ☐ IN MONTHS
ADVISE: BIOPSY ☐ CURETTAGE ☐
REMARKS:

CYTOLOGY LAB. A-3, CIN'TI GEN. HOSP. HOSPITAL NO.
DATE: PT'S NAME
PHYSICIAN'S NAME
AND ADDRESS
REPORT: NEGATIVE ☐ DOUBTFUL ☐ POSITIVE ☐
WE SUGGEST: A REPEAT SMEAR ☐ TYPE OF SMEAR:
CERVICAL BIOPSY ☐ CERVICAL ☐
CURETTAGE ☐ VAGINAL ☐
REMARKS: OTHER ☐
FOLLOW-UP INFORMATION WILL BE APPRECIATED
PLEASE FILL OUT ABOVE DOUBLE LINE

Form for request for cytological examination.

clearly warranted. The postmenopausal bleeder does not need a Papanicolaou smear, because her primary symptom has already suggested uterine cancer. In other words, the cytological technique is a screening technique and not one to be applied in lieu of specific diagnostic methods in the patient with symptoms.

Scanty or Poorly Prepared Smears.—The pathologist does not hesitate to return a report of "inadequate tissue for diagnosis." Such a decision is a little more difficult for the cytologist, because in the case of the scantiest smear he may accurately report that he has seen no malignant cells. It therefore becomes a matter of judgment as to when a smear is so scanty as to be inadequate, and occasionally the cytologist will make the mistake of reporting a scanty smear as negative when he should have returned no diagnosis and asked for a repeat smear. This is an easy trap to fall into, since the request of a repeat smear is a nuisance to the physician and the source, very often, of grave misgivings in the mind of the patient.

Many cytology laboratories, our own included, discourage the submission of bloody smears, and this policy has caused a certain amount of confusion in the minds of the clinicians. The structure of the greatest importance to the cytologist in his attempt to diagnose cancer by means of a smear is the nucleus. The primary advantage of the Papanicolaou trichrome stain is that it renders cytoplasm transparent and thus permits easy and accurate inspection of the nucleus. A frankly bloody smear loses this transparency and becomes, after staining, opaque. The cytologist, looking at such a smear, has the feeling that he is viewing cells through a muddy ocher filter. Nuclear detail is lost, and the cytologist is under a severe handicap. Small amounts of blood, on the other hand, as when the material being smeared is blood-streaked, present no obstacle to effective examination.

Other Errors.—A particularly humiliating source of error to the cytologist is superficial necrosis in an obvious, advanced carcinoma. Such necrosis results in poor detail in exfoliated cells and in some cases no cellular detail at all. If a negative report is returned under such circumstances the cytologist is sure to receive an indignant call from the attending physician who does not understand how the technique can miss obvious cancer and yet be expected to pick up very early lesions. The answer, again, is that, given an apparent lesion, the diagnostic choice should be biopsy, not smear.

Causes of Positive Error

Misinterpretation.—Cytological misinterpretation is by far the most frequent producer of false-positive smears in our laboratory. Certain benign cells, particularly degenerate endocervical cells, aberrant basal cells, and large histiocytes, may present nuclear alterations which can be confused with malignant changes. Careful observation, repeat smears, and experience are the only answers to such error.

Weakness in Cytological Technique.—A second cause of false-positive reports is a basic weakness in the cytological technique itself. Everyone is familiar with the nuclear abnormalities on which the cytologist depends for making a diagnosis of cancer—nuclear enlargements, increased nuclear:cytoplasmic ratio, irregular nuclear outline, hyperchromatism, and irregular deposition of chromatic material. However, it is also generally and vaguely believed that these changes are specific to malignant processes. This is incorrect. These changes are criteria, not of cancer per se, but of an increase in the rate of cellular division. Any process which increases the rate of cell growth can also produce nuclear atypia. The most striking examples of such nonmalignant atypia are found in genital smears taken from women who are pregnant or who are suffering from vaginitis. The cells in such smears may differ from truly malignant cells only in the degree of changes observed. Thus, the process of distinguishing the possibly malignant from the nonmalignant cell often becomes a problem not of distinguishing black from white but of evaluating intermediary shades of gray. This is a matter of cytological judgment, again, and therefore fallible.

Finding of Atypical Basal Cell Hyperplasia.—There is a process productive of false-positive reports which in my mind are not false-positive at all. Pathologists recognize a cervical lesion in which cellular changes, indistinguishable from preinvasive carcinoma of the cervix, occur but do not involve the full thickness of cervical epithelium. These cellular alterations affect the deeper cell layers but disappear in those layers nearest the epithelial surface. This lesion has been called atypical basal cell hyperplasia by most pathologists. Others, who feel that it represents a potentially malignant but reversible process, apply the term precancerous metaplasia.

When the Ayre spatula is used to obtain cervical cells for examination it may penetrate the superficial layers of normal cells and thereby pick up abnormal cells from more basal layers, leading to a positive report. Under these circumstances a positive report is returned on a patient who does not have cancer and must therefore be considered as falsely positive. On the other hand, the cells responsible for the diagnosis are morphologically indistinguishable from the cells which make up preinvasive carcinoma. This type of error leaves us unashamed.

False-Positive Findings Later Found Positive.—Finally, there are positive smears which cannot be substantiated at the time of initial investigation and are therefore deemed false but are eventually shown to be correct. The cancerous area exfoliating malignant cells may be so small as to be missed by punch

biopsy. Such a tiny focus may also be missed by the pathologist if an insufficient number of blocks are made of an adequate amount of submitted tissue. And, rarely, the source of malignant cells found in a vaginal smear may be extrauterine, e. g., carcinoma cells from the bladder carried into the vagina at the time of urination.[5]

Effectiveness of Laboratory Screening

It is difficult to calibrate the effectiveness of a cytology laboratory, particularly one with a large work volume, in numerical figures. Usually when a report is made on the use of the cytological technique, an effort is made to determine the percentage of accuracy. Statistical reports in the national literature indicate the accuracy of the technique, as applied to the female genital tract, to be around 97%. This is not quite as impressive as might first appear. The 97% figure—indicating a total error of only 3%—is obtained by averaging out the positive error (that is, the number of positive reports returned in patients who did not have cancer) and the negative error (that is, the number of cases of cancer missed by smear). The positive error nationally is around 1% and the negative error around 10%. By averaging these two percentages together in relation to total patients screened, a total error of 3% is obtained. I think that this is medical sophistry. The most unpleasant thing that can happen to a patient with a false-positive report on a genital smear is an unnecessary cervical biopsy and/or dilation and curettage. A false-negative report, on the other hand, can contribute to the patient's death by cancer. The important figure, then, is the percentage of negative error.

Accurate figures concerning negative error [6] are difficult to obtain. A positive report calls for immediate investigation and, by that token, a positive error is usually detected quickly and reported to the laboratory. A negative error, however, is often not immediately apparent. Months or even years may elapse before an early occult lesion becomes overt. Determining negative error becomes a knotty problem, particularly when mass screening is in progress.

The following example may be used to show just how difficult this is. In 1955, an effort was made to determine the over-all accuracy of the cytology laboratory. We selected 1950 as the year for investigation, feeling that five years would, in the majority of instances, be sufficient time to permit cases of cryptic uterine cancer to become clinically evident. Lists of all patients screened in our laboratory that year, with dates and our reported diagnosis, were sent to all referring physicians with a column left blank for follow-up information.

A total of 5,609 vaginal smears were made in 1950. Of these, 357 necessitated subsequent tissue study (cervical biopsy or dilation and curettage). Physicians reported clinical follow-up studies of at least three years on 687 patients, which made a total of 1,044 women whose smear tests had been followed up. The incidence of positive error calculated from patients with subsequent tissue study was 3.5%. The incidence of negative error calculated from patients with subsequent tissue study was 7%. The incidence of negative error calculated from all patients with subsequent tissue study or clinical folow-up was 2%. The failure to obtain more follow-up data cannot be blamed entirely, or even in the majority of instances, on physicians. The greatest obstacle to compilation of adequate data was the patient who made only one or two visits and was subsequently lost to the original physician's surveillance.

In addition to the determination of percentage accuracy there is another perhaps more satisfactory way of estimating the efficacy of a screening technique. The basic, vital function of a cytology laboratory is the detection of cancer which would have been missed had it not been for the routine application of cytological technique. On the request form submitted with each smear is an item asking the physician to state (by check mark) whether or not he suspects cancer. In the event that the smear leads to a diagnosis of cancer and the above item has not been checked off, the physician is asked the same question by telephone. Only if the physician specifically denies any suspicion of cancer prior to the receipt of a doubtful or positive report is the patient included in the unsuspected list.

From Aug. 31, 1956, to Aug. 31, 1957, out of 21,200 patients screened, a doubtful or positive smear led to the diagnosis of unsuspected uterine cancer in 83 cases. From Aug. 31, 1957, to Aug 31, 1958, out of 27,602 cases screened, a doubtful or positive smear led to the diagnosis of unsuspected uterine cancer in 77 cases. Of these patients 49% had preinvasive carcinoma of the cervix, one of the few types of carcinoma in which permanent cure can be assured. It is my belief that these data strongly indicate the value of large-scale cytological screening of women for genital cancer.

1035-36 Carew Tower (2).

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APPARENT RECOVERY IN CHRONIC LYMPHOCYTIC LEUKEMIA

REPORT OF A CASE WITH FIVE-YEAR REMISSION AND NO CLINICAL OR HEMATOLOGICAL EVIDENCE OF THE DISEASE

Carl Reich, M.D., New York

A patient experienced sudden relief from the splenomegaly and other signs and symptoms of lymphatic leukemia and has remained free from all manifestations of the disease for more than five years. The onset occurred with rapid loss of weight in August, 1951, when the patient was 52 years old. Physical findings, hematological data, and results of lymph node biopsy were typical of chronic lymphatic leukemia. Treatment included repeated transfusions of whole blood, roentgenotherapy applied to the much enlarged spleen, and injections of liver extract. For two years the patient did not improve except temporarily after transfusions. The splenomegaly subsided abruptly in August, 1953, and when the patient was reexamined in September, 1953, her weight, appearance, blood cell count, and bone marrow were normal. They have remained so.

In most textbooks on medicine, leukemia is described as invariably fatal. A few patients have been reported who apparently recovered, but the diagnosis was usually doubtful and the reviewers[1] of these cases have always mentioned them with some reservations.

The case of lymphocytic (lymphatic) leukemia reported here occurred in a woman first seen by me in August, 1951. The diagnosis satisfied all the criteria of modern hematology, and the patient is alive and well today. A brief summary of the case history follows.

Report of a Case

A 52-year-old woman presented herself at the hematology clinic of Lenox Hill Hospital in August, 1951. She had been ill for a few months and had lost 42 lb. (19.1 kg.) in weight. Her normal weight was 160 lb. (72.6 kg.). She was pale, her gums were puffy and oozing, and she looked chronically ill. She had been born in Limerick, Ireland, March 3, 1898. Her mother had died of pneumonia. The patient was married and had eight children. At the age of 38 she had had a gallstone attack but no operation. Menopause occurred when she was 51. She did not smoke or drink. In February, 1951, she had been operated on for varicose veins at Lenox Hill Hospital. Her blood findings were normal at that time. Determinations done at that time were as follows: hematocrit value, 44%; hemoglobin level, 95% (14 Gm. per 100 cc.); red blood cell count, 4,600,000 per cubic millimeter; white blood cell count, 7,200 per cubic millimeter, with 68% neutrophil polymorphonuclear cells (8 nonfilamented cells), 19% lymphocytes, 9% monocytes, 3% eosinophils, and 1% basophils; and platelets, 200,000 per cubic millimeter.

On physical examination, the positive findings were a marked enlargement of the spleen and liver and a generalized lymphadenopathy. There had been no history of a previous febrile illness, and she had not been exposed to any chemicals. The blood findings in August, 1951, were as follows: hemoglobin level, 45%; red blood cell count, 2,600,000 per cubic millimeter; white blood cell count, 52,000 per cubic millimeter, with 81% lymphocytes, 18% polymorphonuclear cells, and 1% monocytes; and platelets, 90,000 per cubic millimeter. The lymphocytes were of the small type. There were no Downey cells, and the heterophil agglutination test gave negative results. The sternal bone marrow (fig. 1) showed marked infiltration by small lymphocytes and was considered typical of chronic lymphocytic leukemia. A cervical lymph node (fig. 2) was removed on Aug. 9, 1951, and the report of the pathologists, Drs. R. M. Paltauf and G. L. Rohdenburg, was as follows: "Microscopic examination reveals a lymph node the normal architecture of which is obscured. All the sinusoids are filled with large and small lymphocytes and similar cells are seen infiltrating the capsule. Diagnosis: lymphocytic (lymphatic) leukemia."

She was then treated by transfusion and x-ray. Her blood group was O, Rh-positive. She had seven hospital admissions, during which she received 22,500 cc. of whole blood. Transfusions were given on the following dates: Aug. 7, 8, 9, and 11, 1951, Feb. 26 and 27, May 2, Sept. 18, 22, and 24, and Dec. 19, 20, 21, and 22, 1952, and Feb. 10, 11, 13, 14, and 15 and April 12, 13, and 14, 1953. She was also given x-ray treatment to the anterior part of the spleen according to the following schedule: A Picker oil-cooled machine was used, with 200 kv., 15 ma., target-skin distance 50 cm., portal size 10 by 15 cm., 0.5 mm. Cu—1 mm. Al filtration, and 36 r

From the Medical Service, Lenox Hill Hospital.

per minute. Irradiation was given for two and three-fourths minutes (100 r) the first day of therapy and five and one-half minutes (200 r) subsequently for a total of six times and 1,100 r. The dates of therapy were Dec. 22, 24, and 29, 1952, and Jan. 2 and March 26 and 31, 1953.

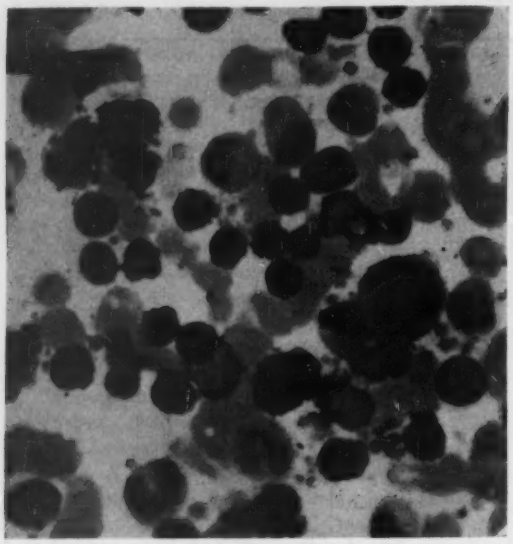

Fig. 1.—Photomicrograph of sternal bone marrow, taken in August, 1951, showing marked infiltration by small lymphocytes.

When she was not in the hospital she was treated at the clinic, where she received a total of 56 injections of liver extract. Following are some interesting notes from her chart: On Sept. 27, 1951, medical attendant Dr. T. J. Morrison noted the spleen to be hard and to extend below the iliac crest and the lymph nodes to be enlarged. On Dec. 4, 1951, Dr. H. Kessler of the tumor clinic examined the patient, found the spleen palpable below the iliac crest, and gave the diagnosis of chronic lymphocytic leukemia. On Dec. 5, medical attendant Dr. R. Gearhardt noted generalized lymphadenopathy and the spleen markedly enlarged and hard. A similar notation was made by medical attendant Dr. Robert Schleussner on Feb. 18, 1952. On April 14, 1952, pain, aching in character, in the left upper quadrant was noted by medical attendant Dr. Colter Rule. On May 3, 1952, the diagnosis of chronic lymphocytic leukemia with splenic infarct was made by Dr. Edgar Lawrence, medical director. At that time blood findings included white blood cell count 45,500 per cubic millimeter, with some blast cells and 85% lymphocytes, hemoglobin level 9 Gm. per 100 cc., and red blood cell count 3,100,000 per cubic millimeter. The diagnosis of chronic lymphocytic leukemia with splenic infarct was again given on Oct. 2, 1952, when blood findings showed the hemoglobin level to be 7 Gm. per 100 cc., white blood cell count 51,000 per cubic millimeter, with 87% lymphocytes, and blood urea nitrogen level 40 mg. per 100 cc. On July 9, 1953, physical examination, done by Dr. Alexander Vongries, chief medical resident, revealed the patient to be poorly nourished, pale, and chronically ill. Her gums were pale, soft, and spongy and bled easily. The spleen was firm and tender and extended below the iliac crest. The liver was palpable three fingerbreadths below the costal margin. The cervical, axillary, and inguinal nodes were enlarged. The diagnosis was chronic lymphocytic leukemia.

As seen by these clinical notes by various attending physicians, she made no progress from August, 1951, to July, 1953. The spleen remained just as large and just as hard, and the liver and lymph nodes also remained enlarged.

The anemia persisted except for temporary improvement after transfusions, and the white blood cell count varied from time to time, depending on the x-ray effect.

Finally, in July, 1953, she came to me and asked if she could revisit Ireland before she died. I consented, and she left by plane with her sister. On her return from Ireland in September of the same year I saw her again and hardly recognized her. She had gained 25 lb. (11.3 kg.) in weight, and

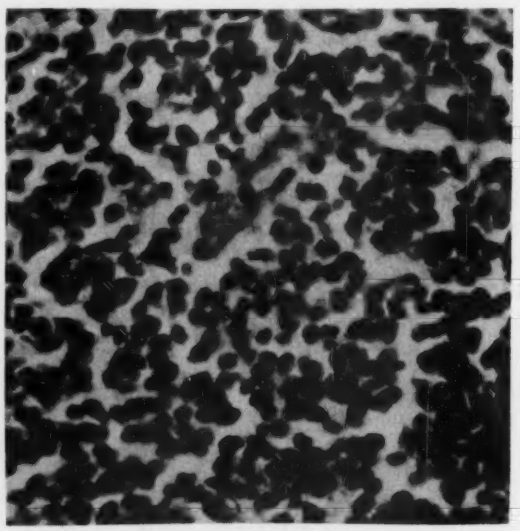

Fig. 2.—Photomicrograph of lymph node, taken in August, 1951, showing obscuring of normal architecture.

her skin was ruddy. The lymph nodes were no longer enlarged, and the spleen and liver were normal in size. She told me that one evening in August, while sitting in front of the fire in her little home outside of Limerick, she put her hand on

her abdomen, and, instead of the usual hard mass which had been present, the entire abdomen was now soft. Her blood cell count and bone marrow were normal on subsequent examination.

Over the succeeding years, careful, repeated blood and bone marrow tests have been done, and all have given normal results.

Typical blood findings (March, 1958) have been as follows: hematocrit value, 46%; hemoglobin level, 100% (14.5 Gm. per 100 cc.); red blood cell count, 5,000,000 per cubic millimeter; white blood cell count, 7,500 per cubic millimeter, with 67% neutrophil polymorphonuclear cells (9 nonfilamented cells), 17% lymphocytes, 12% monocytes, 3% eosinophils, and 1% basophils; and platelets, 200,000 per cubic millimeter. A photomicrograph of the sternal bone marrow, taken in March, 1958, is shown in figure 3.

On May 21, 1958, Dr. Claude E. Forkner examined the patient and reviewed the lymph node section and bone marrow smears. He was of the opinion that the bone marrow and lymph node sections taken in March, 1951, were typical of lymphocytic leukemia. He also noted that the patient showed no clinical evidence of leukemia on May 21, 1958, and that the blood and bone marrow taken March, 1958, were completely normal. His personal note is as follows:

"This patient would seem to represent an almost unique situation in which she has remained well without treatment for a period of five years. In spite of the prolonged and apparently complete remission she should be followed with care for any indication of relapse. Patients with chronic lymphocytic leukemia on rare occasions may have long asymptomatic remissions but usually such remissions are not complete so far as the blood count is concerned. The wise physician refrains from treating patients with asymptomatic chronic leukemia because of its possibility of upsetting an equilibrium in which natural forces are holding the disease in check."

On June 20, 1958, this patient was presented before the entire medical staff at Lenox Hill Hospital at a weekly conference. Dr. Edgar Lawrence was the chairman, and Dr. Claude E. Forkner led the discussion. Everyone present was satisfied with the evidence presented, and there was no dissenting discussion.

The following recent review of the pathology of the lymph node removed in August, 1951, was made by Dr. Maurice N. Richter, director, department of pathology, New York University–Bellevue Medical Center: "The section of lymph node . . . is from a case of malignant lymphoma and is quite consistent with the clinical diagnosis of lymphatic leukemia."

Comment

It is possible that this patient is in a period of prolonged remission. In leukemia, especially of the lymphocytic type, a long remission may either occur spontaneously or be produced by therapy. However, this case is distinguished by the fact that for the last five years the patient has shown no clinical or hematological evidence of the disease.

This finding leads to many interesting speculations. It is possible that some factor in the blood of one of the donors may have had a salutory effect on the outcome of her disease. Whatever the cause of her recovery, the important lesson to be learned from this case is that there is hope even in such a dreadful disease as leukemia. This should give some comfort to the many patients suffering from leukemia and to their anxious relatives.

Summary

In a case of chronic lymphocytic leukemia, complete recovery has apparently taken place and has persisted for five years. The diagnosis was substantiated by typical blood, bone marrow, and lymph node biopsy findings, as well as a two-year hospital course typical of a severe leukemia. The patient subsequently has had a five-year period of complete freedom from any physical, blood, or bone marrow abnormalities. These observations provide a note of hope on the outlook of leukemia.

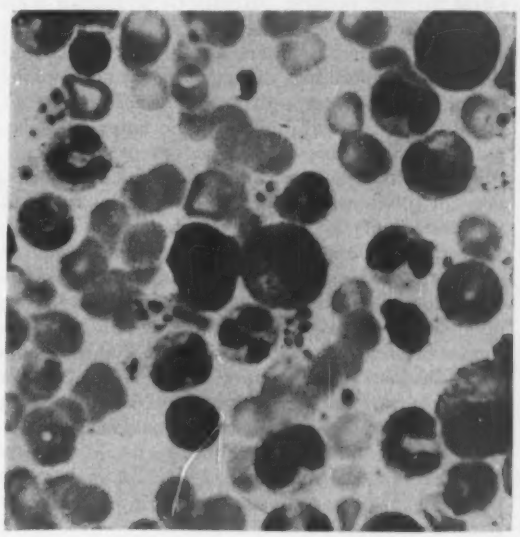

Fig. 3.—Photomicrograph of normal sternal bone marrow, taken in March, 1958.

19 E. 80th St.

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COMMON OCULAR TRAUMA

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Physicians who are not ophthalmologists sometimes are obliged to treat eye injuries either because of the nature of their practice or because the situation demands immediate medical care. The minimum equipment includes some form of magnifier, a source of light, and a treatment tray, the contents of which are here listed. Chemicals splashed into the eye must be removed by immediate washing if possible, and time should not be lost searching for appropriate neutralizers. Penetrating wounds of the cornea are dangerous, especially if they have perforated the lens or iris. If a corneal injury is too deep for immediate diagnosis or treatment, the eye should be covered and immobilized until expert attention can be given in favorable surroundings. The infrared radiation from an atomic flash, even at distances exceeding 70 km. (45 miles), can cause a choroidal burn before the blink reflex can close the eye. Safety measures to forestall injury are best, but when injury has occurred rational first aid minimizes later complications.

The frequency with which a physician sees a specific type of ocular injury depends on the nature of his practice. In an industrial neighborhood foreign bodies and flash and hot oil burns would be most common. In a residential section, with a high percentage of housewives, there would be injuries due to foreign bodies, corneal abrasions caused by brushes and infants' fingernails, and contusions due to open cabinet doors. In the event of a thermonuclear attack, radiation burns would present problems entirely different from those of everyday practice. The most common ocular injuries are those due to foreign bodies; direct blows causing abrasions, contusions, and lacerations; and thermal, chemical, or radiation burns.

The presence of anything in the eye which does not belong there constitutes an emergency. The foreign material must be removed by the quickest, safest method possible, usually by irrigation with water or some other bland fluid. Educational programs for children, workers, and housewives should stress the importance of immediate and copious irrigation with water, milk, or any other bland fluid when foreign material of any type enters the eye. After this generous eye bath the patient should consult a physician. Immediate attention will often prevent blindness, especially in the case of chemical burns.

Workers who are exposed to flying objects or sources of flame should wear goggles. Hobbyists and "do-it-yourselfers" should be warned to use adequate protective devices. Incidentally, any patient who is struck in the eye with a flying particle while he is using a hammer or other metal object should be instructed to bring in the tool so that it can be determined whether it is magnetic or nonmagnetic. It will also be helpful to locate the particle, because it can then be matched against the tool from which it came to see if any missing portion may still be within the eye.

Materials and Method

This paper is directed at those who are not ophthalmologists yet who may find it necessary to treat eye injuries, either because of the nature of their practice or because the exigencies of the situation demand medical care before a specialist can be summoned. Visual loss which is not obviously of a temporary nature demands consultation and treatment by an ophthalmologist. Before the nonspecialist can treat ocular injuries he must be prepared to approach the eye. This demands a minimum amount of equipment, including (1) some form of magnification, preferably a loupe, consisting of a combination of convex lenses and prisms, which can be worn either as an eyeglass or in a head band; (2) a source of focal light, preferably a floor lamp, which throws a bright, narrow beam; (3) a treatment tray which should contain cotton balls; toothpick swabs; sterile fluid for irrigation, preferably in a squeeze bottle or an atomizer; topical anesthetic (0.5% tetracaine solution, proparacaine hydrochloride [Ophthaine], or benoxinate [Dorsacaine] hydrochloride, not cocaine); a spud for removing foreign bodies or hypodermic needles which can be used for the same purpose; fluorescein for staining the cornea; a lid retractor; a cycloplegic drug (0.5% homatropine solution or 0.5% cyclopentolate hydrochloride solution); eye pads; and scotch tape.

Although fluorescein solution comes in bottles of 1.0% concentration it is preferable to use fluorescein strips which come in individual, sterile packages. Since fluorescein is an excellent culture medium for Pseudomonas aeruginosa (pyocyanea), the individual strips eliminate the dangers of contamination inherent in using bottles of the solution. Actually, the less one relies on stock bottles and eye droppers the less is the danger of contamination. If a lid retractor is not available a heavy bent hairpin may serve the purpose. While cycloplegic drugs should

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Read in part before the 12th Clinical Meeting of the American Medical Association, Minneapolis, Dec. 3, 1958.

be available they should rarely be used by the general practitioner and never after the removal of a simple foreign body. Many patients have been practically immobilized for a week or two by a dilated pupil, caused by the unnecessary instillation of atropine, after a trivial injury.

It is mandatory to obtain a history of the accident, preferably from the patient himself, at the first visit, before "compensationitis" has had a chance to set in. It is amazing how often a simple foreign body in one eye will cause a need for reading glasses in a person over 40 years of age. He has consciously or unconsciously neglected to do anything about his presbyopia before the accident and now becomes convinced that it was caused by the foreign body. Also, long after the accident has occurred the patient is frequently persuaded that the "rich" insurance companies are in a better position to take care of him than he is. If possible, vision with and without glasses should be determined and recorded before the eye is treated. Prognosis should not be discussed until the outcome is certain.

Every physician should learn how to evert the upper lid. It is important to have complete control of the patient. If the upper or lower lid is held firmly against the superior or inferior bony margin of the orbit, the patient will be unable to close his eyes when he squeezes. A head rest makes immobilization easier.

Whenever the cornea is involved it should be stained with fluorescein so that any denuded areas may be more effectively highlighted. A drop of fluorescein is instilled into the anesthetized eye. After a minute the eye is irrigated with sterile saline solution or water. It is advisable to place a plastic apron of the type used in beauty parlors around the patient's neck as people resent having their clothes saturated with irrigating solution, especially if it is tinged with fluorescein. In addition to the major advantage listed above, the use of fluorescein strips will diminish this possibility. The patient should be asked to look up and the fluorescein strip can be placed inside the lower lid of the anesthetized eye, which should then be closed for a few moments. Irrigation is unnecessary. The eye may then be examined with good focal illumination and magnification.

Some important points to remember in examining an eye, in addition to those that have been mentioned above, are as follows: 1. Always evert the upper lid, since foreign bodies commonly tend to lodge on the shelf just inside the upper lid border. 2. If a foreign body cannot be found, hold the everted upper lid up while the patient looks down, and explore behind the lid with a moistened, tightly wound cotton toothpick swab to ascertain if any foreign material is lodged in that blind area of the cul-de-sac. 3. Irregularity of the light reflexes on the cornea or loss of the normal mirror-like relucency of the cornea indicates corneal injury or edema. 4. Blood in the anterior chamber, dilation or paralysis of the pupil not due to medication, distortion of the pupil, or subconjunctival hemorrhage after a history of a blow to the eye indicates possible ocular damage. A shallow anterior chamber in comparison with the other eye points to a probable penetrating injury. 5. Normal vision is compatible with serious eye injuries. 6. Always examine with an ophthalmoscope, employing a highly convex lens (+12 or +15) and starting 6 or 8 in. from the patient's eye. Focus on the pupil and the red reflex, and slowly decrease the degree of convexity as you approach the pupil and examine the fundus. A corneal scar, foreign body, or lens opacity is seen as a dark spot in the red reflex. If there is vitreous hemorrhage or a large retinal detachment the normal round, red reflex will be obscured or absent. A large vitreous hemorrhage will cause a black reflex. If fundus examination reveals any abnormality, consultation with an ophthalmologist should be secured. A retinal detachment is usually seen as a gray elevated area over which the retinal vessels are black rather than red. 7. An iris which trembles during movement of the eye indicates that the lens is either dislocated or absent. 8. A "black eye" or bleeding from the nose or ears following a head injury may indicate cranial damage.

Injuries to the Orbit

Injuries to the orbits may involve soft tissue trauma with bleeding, lacerations of the brow, or fractures of the orbital rim. An important injury is the "Herb Score" type, in which the patient is struck in the region of the orbit with a baseball or softball. This is commonly seen in adults who play rarely and who have not learned that men should not play boys' games. The orbital rim will usually cushion a blow against the eye unless the offending object hits the relatively unprotected temporal side. A softball, with its larger circumference, is more apt to cause bony injury than is a baseball.

Emphysema and crepitation on palpation suggest fracture of the orbital rim and demand x-ray examination. When a fracture of the floor of the orbit is not promptly corrected the eyeball will drop and severe diplopia will result. Simple lacerations of the orbital skin are sutured in routine fashion. Sudden loss of vision accompanying an injury to the globe may mean fracture of the orbit resulting in laceration of the optic nerve or hemorrhage into the nerve sheath.

Blows to the lids most commonly cause ecchymosis, the common black-and-blue eye. This rapidly responds to daily intramuscular injections of 1 cc. of chymotrypsin. The injection of 20 units of hyaluronidase into the discolored area will stimulate more rapid absorption of the blood. This is inadvisable in aged and debilitated patients, however, as it may produce more bleeding.

Simple lacerations of the skin may be closed with 00000 or 000000 silk sutures. If the laceration is through the lash margin of the lid, one must approximate the cut distal edges or else lid notching

will occur. When the laceration is deep the lid must be closed in layers. If the laceration extends through the conjunctiva, the cut ends of the sutures should be buried within the lid or they will abrade the cornea. If the laceration is between the punctum and the nose one should ascertain whether the lacrimal canaliculus is severed, as this calls for specialized care. If an ophthalmologist is not available, the physician should attempt to push a fine wire, polyethylene tubing, or stiff catgut suture through the punctum and then out the cut end of the canaliculus and into its other cut end as far as possible. Because of its delicacy, loss of any appreciable amount of lid skin demands plastic surgery to prevent lid distortion with eversion of the lash margins and consequent lacrimating and discomfort, or inversion of the lash margins with resultant denuding and scarring of the cornea. Partially severed ocular tissues which hang down, as, for example, the edge of an eyelid with its lashes, and are almost completely separated from the rest of the lid will often heal with amazing rapidity. Extensive débridement or excision of such dangling tissue areas should not be done unless absolutely indicated.

Injuries to the Conjunctiva and Cornea

Small lacerations of the conjunctiva need not be sutured. Any laceration of the conjunctiva means that a penetrating injury must be ruled out. Chemicals which enter the conjunctival sac must be removed immediately by copious irrigation. Solid chemical particles which remain, especially lime and plaster, must be removed with fine forceps. The area of the upper cul-de-sac should be thoroughly irrigated. Corneal and conjunctival injuries present similar problems when chemicals are involved. Acid burns tend to cause immediate, usually localized, nonprogressive tissue necrosis. Alkali burns, such as those due to plaster and lime, are dangerous and progressive, especially if any residual particles are not removed. At this point it must be emphasized that neutralization of chemicals is passé. One no longer waits to neutralize a chemical, but washes it out as rapidly as possible. The patient's eye should be irrigated promptly at the work site with water from a pan, bucket, hose, or any other handy source of supply, or his head should be held in a bucket of water or under a running tap with the lids forcibly held open.

Corneal burns heal more rapidly when treated with topically administered steroids. Chemical gases may penetrate the cornea and enter the globe, necessitating paracentesis of the anterior chamber. This procedure demands the attention of an ophthalmologist. The danger of this type of injury should be borne in mind.

When chemicals enter the cul-de-sac they may create adhesions between the abraded conjunctiva and the cornea. These should be prevented by (1) instilling bland ointments between the lids, (2) avoiding complete immobilization of the eye for long periods, and (3) inserting a shape-retaining conformer made of dental wax or some similar material into the cul-de-sac if the burn is severe. Occasionally, contaminated foreign material in the cul-de-sac will result in an internal (meibomianitis) or external hordeolum (sty) after several days.

The physician's aims are to control pain, remove foreign substances, stimulate healing, or at least not interfere with it, prevent anatomic distortions, and produce maximal visual recovery. To that end, topical anesthesia may be used when the patient is first seen, but as infrequently as possible thereafter. Where intense lid spasm is present the anesthetic will enable the patient to open his own eyes and cooperate with the physician, but topical anesthetics tend to delay healing and should therefore be used sparingly. Antibiotic ointments also tend to interfere with healing and should be used only if infection is present or feared. One should never put any medicament into the eye just for the sake of doing something. Topically administered steroids are not indicated after the removal of simple corneal foreign bodies and may be deleterious in the event that herpes simplex virus is present. Steroids minimize reactions in keratitis after reactions to incomplete rust ring removal. Contamination in the physician's office may result in infection of the wound and possible loss of the eye. Sterile solutions and instruments should be used; this means that one should not have his solutions made up by the druggist but should buy already prepared sterile products.

Metallic foreign bodies are usually associated with rust rings. The foreign body can be lifted out with the tip of a sterile cataract knife, a corneal spud, or a hypodermic needle with use of focal illumination and magnification. If the foreign body is deep in the cornea it should be removed by an ophthalmologist. An iris freckle must not be mistaken for a corneal foreign body. The eye should be patched after a corneal foreign body has been removed.

Removal of rust rings is difficult and usually requires the use of a slit lamp. At times one can touch the area of the rust ring gently with 1% silver nitrate solution on the tip of a tightly wrapped applicator. The eye should then be patched for 24 hours. The next day the whole area can usually be lifted out with the sharply pointed end of a narrow knife or a needle. It is not advisable, however, for a nonophthalmologist to apply silver nitrate solution to the cornea, and this procedure should be attempted only in emergency situations.

Occasionally a large number of foreign bodies will be seen in a cornea. When it is evident that attempted removal of these foreign bodies, especially in the pupillary area, might result in considerable corneal scarring and consequent loss of vision, it may be wise to wait and allow the foreign bodies to extrude themselves. I have seen two cases in which the corneas were spattered with hundreds of foreign bodies as a result of backfire during

target practice. In both cases, the foreign bodies extruded spontaneously over a period of months. Attempts at removal would have resulted in considerable visual loss because of corneal scarring caused by the instrumentation. This advice does not apply, however, when metallic foreign bodies are present; these should always be removed as promptly as possible.

If a protruding foreign body has penetrated through the cornea into the anterior chamber it is best not to attempt removal but to refer the case immediately to an ophthalmologist. Attempts to remove these protruding foreign bodies frequently result in breaking them off, rendering later removal difficult.

Corneal abrasions rarely require more than a cleansing irrigation and a tight pressure patch for from 24 to 48 hours. A double eye pad should be affixed with multiple strips of firmly placed adhesive tape to produce the desired pressure and immobilization of the abraded globe.

When the attending physician cannot handle a corneal injury or estimate its gravity, the eye should be patched and thus immobilized until more expert attention can be secured. If the injury is a penetrating one both eyes should be patched. Corneal lacerations may require suturing. Blows or lacerating injuries to the cornea demand ophthalmoscopic examination to rule out hemorrhage, retinal edema, or detachment. Blows to the eye may produce ruptures of the choroid which are seen as semilunar white rings, concentric and usually temporal to the optic nerve. Traumatic anterior chamber hemorrhages tend to be recurrent and may produce secondary glaucoma.

Penetrating wounds of the cornea are always potentially dangerous, especially if they have perforated the lens or iris. One should note the depth of the anterior chamber by comparing it to the other eye. If a pupil is irregular or protrudes through the laceration an ophthalmologist should be consulted immediately. One should avoid the error of trying to wipe a blood clot away from a wound only to discover that it is a prolapsed iris. If the services of an ophthalmologist are not available when the iris is prolapsed the prolapsed portion should be excised with sterile scissors, after which a cycloplegic such as atropine should be instilled. Deep injuries of the cornea and iris are accompanied by iritis.

Burns

Flash burns and ultraviolet radiation burns of the cornea rarely cause any serious problem except for the initial discomfort and lid spasm, which may last for several days. Burns due to boiling water, flames, or hot grease which have not caused serious corneal damage also belong in this category. A drop of topical anesthetic should be immediately instilled into the eye of the victim to show him that he can open his lids and that he has not been blinded. Such burns are best treated with cold compresses, phenacaine (Holocaine) hydrochloride, epinephrine ointment several times a day for the first few days, a decongestant (tetrahydrozoline [Visine] hydrochloride, naphazoline [Privine] hydrochloride, or phenylephrine hydrochloride, ⅛% solution) two or three times a day, and ample reassurance. Lid burns should be treated in the same manner as skin burns elsewhere.

In these days of potential atomic warfare it is advisable for the physician to know something about ocular injuries during atomic attack. Byrnes and co-workers [1] have shown that it is possible for the eye of a person facing in the direction of the exploding weapon to suffer injury as far as 45 miles away from the blast. While the eye represents a relatively small portion of the total body area, its injury rate may be out of all proportion to its size. External eye burns due to atomic radiation are much like burns from other causes, the one difference being that because the blink reflex is much slower than the speed of the light delivered by the atomic flash the inside of the eyeballs may be burned before the blink reflex can close the lids. The atomic energy which is delivered to the inner eye through the open pupil results in a choroidal burn which is permanently damaging and for which little can be done. At the time of the burn there is considerable edema of the surrounding retina and choroid. It is probable that the immediate systemic administration of a large dose of ACTH or one of the steroids would prevent much of the damage due to the edema itself. The size of the pupil controls the amount of damage suffered by the inner eye. All other things being equal, including the distance from the exploding atomic weapon, less light intensity is delivered to the inside of the globe if the damage takes place in daylight when the pupil is normally narrower. If the explosion occurs at night when the pupil is normally dilated the damage is likely to be much more severe. The moral, then, is to avoid being anywhere near an exploding atomic weapon. If you are, and you cannot get to a safe place, arrange to be exposed in daylight, face in a direction opposite that from which the blast comes, and keep your eyes closed. One is apt to be lulled into false security by being many miles away from the explosion. As Byrnes has shown, this security becomes less with each increase in potency of atomic weapons.

Summary

The nonophthalmologist is commonly apt to encounter various ocular traumas and should know something of their management. In the main, this is one field where prevention through safety measures and prompt attention to rational first aid is often worth more than later attempts at cure.

441 E. 68th St. (21).

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RISTOCETIN—A STATISTICAL REVIEW OF THREE HUNDRED THIRTY-THREE CASES

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Reports received by a manufacturer from physicians using ristocetin, a new antibiotic, were collated with reports published in clinical literature, and the results were analyzed. Among the total of 333 cases in which the drug was used, there were 126 cases of pneumonia, and approximately 70% of these were caused by staphylococci. There were 46 cases of subacute bacterial endocarditis, and approximately 50% of these were caused by staphylococci. The drug was given either by intravenous injection or prolonged intravenous infusion. The most frequent side-effects were thrombophlebitis (20 cases, 6% of the total) and neutropenia (18 cases, 5.4%). Side-effects were absent in 258 (77.5%) of the patients. The side-effects were most frequent in patients receiving the larger doses, and on the basis of these findings it is recommended that the dosage of this antibiotic in adult patients should not normally exceed 2 Gm. per day. Approximately 60% of the patients were completely cured.

When a new therapeutic agent is introduced, a pendulum is set swinging. Often, first reports are enthusiastic. Later, limitations in the use of the drug may become more apparent. Adverse reports may be the result of disappointment when the drug fails to serve as a universal panacea. Finally, the pendulum comes to rest as indications and limitations are generally recognized.

When a new antibiotic becomes available and when the use of this antibiotic is generally restricted to serious cases, it is difficult for any person to amass a large series of cases within a short time. Experience will vary, and conflicting reports may make it difficult to determine the over-all usefulness of the new agent.

In this situation, physicians working within the medical department of the manufacturing pharmaceutical house occupy a unique position. They have access to detailed clinical reports from many physicians, and if results from a comparatively large number of cases can be correlated and presented without bias this information should be of considerable value to the profession as a whole.

It has been our objective to review all clinical reports on ristocetin (Spontin) during the first year of its use. This survey embraces 333 cases and includes those published in the literature,[1] as well as reports submitted directly by clinicians to us. To minimize personal factors in the evaluation of these reports, analysis has been conducted entirely by machine methods.

Methods and Results of Study

Information from each of the 333 case reports was translated into a numerical code suitable for punching into a standard IBM card. No attempt was made to "edit" the information supplied by the reporting physician. The tables were compiled by sorting these punched cards into the categories indicated.

It can be appreciated that not all the case reports were as complete as we might have wished. The main departure from an "ideal" report was in the area of bacteriology. It can be seen from table 1 that in about 20% of the cases the causative organism was not designated. In many of the cases, too, sensitivity of the organism to various antibiotics was not recorded. Nevertheless, the figures indicate that staphylococcic infections were treated much more frequently than others.

From the Department of Medicine, Abbott Laboratories.

Also in table 1, it can be seen that in approximately one-third of the patients treated with ristocetin the diagnosis of pneumonia was given. In this group of 126 patients, approximately 70% of the infections were staphylococcic. The next largest group, with subacute bacterial endocarditis, included 46 patients, with approximately 50% of the infections identified as staphylococcic and a further 15% as enterococcic.

A point of major interest with regard to a new therapeutic agent is the incidence and type of side-reactions which occur (table 2). Some interesting points emerge from this analysis. Almost 80% of the patients have shown no side-effects. In some instances, it has not been possible to determine whether a toxic effect should be attributed to the disease process, to the administration of another therapeutic agent, or to the administration of ristocetin. Such cases have included proteinuria (two), gastrointestinal upset (one), impairment of hearing (two), and acute anemia (one). The rarity of these occurrences and the fact that in every in-

stance there was an alternative explanation suggest that ristocetin was possibly not the responsible agent.

Also of interest is the clear relationship of side-effects to dosage. This is demonstrated in table 3. The recommended dosage of this antibiotic for

TABLE 1.—*Analysis of 333 Cases by Bacteriological and Pathological Diagnosis*

Organism	No. of Cases	%
Staphylococcus	211	63.4
Streptococcus	12	3.6
Pneumococcus	10	3.0
Enterococcus	11	3.3
Mixed organisms	16	4.8
Organism undesignated	73	21.9
Diagnosis		
Pneumonia	126	37.8
Subacute bacterial endocarditis	46	13.8
Septicemia	38	11.4
Abscesses	32	9.6
Osteomyelitis	24	7.2
Cellulitis	10	3.0
Enterocolitis	8	2.4
Wound, surgical infection	6	1.8
Furunculosis	7	2.1
Meningitis	3	0.9
Bronchitis	3	0.9
Cystitis	3	0.9
Peritonitis	3	0.9
All others	24	7.2

most infections is 2 Gm. per day (for the adult patient). At this dosage level, side-effects have not been troublesome. However, it is clear that when this dosage is exceeded (and particularly when a dosage in excess of 3 Gm. a day is given), the incidence of side-effects rises steeply. It should also be recorded that a similar relationship can be demonstrated between the total dosage of ristocetin administered and the incidence of side-effects. It is known that ristocetin is excreted by the kidneys and that at high dosage (or when renal function is impaired) the antibiotic may accumulate in the

TABLE 2.—*Relative Incidence of Side-effects in 333 Cases*

	No. of Cases	%
None	258	77.5
Neutropenia	18	5.4
Drug fever	12	3.6
Skin rash	14	4.2
Depression of platelet count	5	1.5
Thrombophlebitis	20	6.0
All others	6	1.8

blood and tissues. This laboratory finding probably accounts for the relationship between dosage and side-effects.

It should also be recorded that the over-all incidence of side-effects has declined during the later months of this first year of ristocetin usage. There are three possible explanations for this observation: 1. An improvement in the manufacturing process about six months ago eliminated certain impurities from ristocetin; the antibiotic is now prepared from pure crystalline material. 2. There has been a tendency to eliminate unnecessarily high dosage. 3. A number of clinicians have used intravenous injection (over a period of 5 to 15 minutes) rather than prolonged intravenous infusion. This technique has materially reduced the incidence of thrombophlebitis. It is a logical assumption that the second explanation should also contribute to a reduction in side-effects, and it is possible (though difficult to prove at this time) that the first explanation may be an additional factor.

Finally, it can be stated that these reports indicate that all side-effects from ristocetin are reversible. The most disturbing side-effect has been neu-

TABLE 3.—*Incidence of Side-effects Related to Daily Dose*

Maximum Daily Dose, Gm.	Side-effects, %
0.1-0.9	3.1
1.0-1.9	9.4
2.0-2.9	21.2
3.0-3.9	37.8
4.0-4.9	41.0

tropenia, but this (together with other side-effects) has responded promptly to either discontinuance of medication or, in some instances, reduction in the dose of antibiotic.

An examination of the over-all results (table 4) shows that approximately 60% of the patients treated were completely cured. A further 17% were classified as "improved." This category usually included patients in whom the infection responded to antibiotic therapy but in whom a full return to health was prevented by other pathological conditions.

There remains 23% of cases in which "no response" was reported. A detailed examination of this group showed a high incidence of moribund or virtually "hopeless" cases. Often there was some complicating factor unamenable to antibiotic therapy. For example, in the pneumonia group, the illness might be the terminal event in a case of lung

TABLE 4.—*Analysis of Response to Treatment*

Organism	Cured, No.	Improved, No.	No Response, No.	Total
Staphylococcus	118	44	49	211
Streptococcus	5	1	6	12
Enterococcus	10	0	1	11
Pneumococcus	8	1	1	10
Mixed organisms	14	0	2	16
Organism undesignated	46	11	16	73
Total	201	57	75	333

cancer. In the bacterial endocarditis group, cardiac function might be so impaired mechanically as to make recovery unlikely. An appreciable number of patients in whom "no response" was recorded received only a few doses of the antibiotic before death intervened.

Summary and Conclusions

In a review of detailed case reports on 333 patients treated with ristocetin (Spontin), statistical analysis by machine methods led to these conclu-

sions: The major use for ristocetin has been the treatment of staphylococcic infections. Side-effects are seldom troublesome, if a daily dose of 2 Gm. is not exceeded. Side-effects rise steeply when dosage is increased. The most disturbing side-effect after the administration of ristocetin has been neutropenia. However, in all instances this has responded to either discontinuance of medication or reduction in dose. The administration of ristocetin has brought about a cure in 60% of the cases reviewed and improvement in a further 17%.

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NEW OPHTHALMIC DECONGESTANT, TETRAHYDROZOLINE HYDROCHLORIDE

CLINICAL USE IN 1,156 PATIENTS WITH CONJUNCTIVAL IRRITATION

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Tetrahydrozoline hydrochloride is a sympathomimetic agent which causes local vasoconstriction when topically applied and a rise of blood pressure when given systemically. Instilled as a 0.05% solution into the eye, it was found to afford prompt relief, lasting from one to four hours, from the congestion accompanying allergic or chronic conjunctivitis. It was administered in doses of a single drop instilled into each eye two to four times daily in 1,156 patients with these conditions. This dose, while sufficient to give the desired relief in the majority of patients, had no side-effects beyond a mild, transient irritation. It did not raise the intraocular pressure and had no adverse effects when used for periods up to two years in patients with cataracts. There was no evidence that it affected the course of cataract or hindered recovery from chronic conjunctivitis or from the subacute stage of acute conjunctivitis.

Today, more than ever, the ophthalmologist is appreciative of the benefits accruing to patients from the use of nonspecific preparations in the management of conjunctivitis. Ideally, such adjunctive local preparations should have the following features: (1) optimum activity at low concentration; (2) few or no side-effects; (3) prolonged stability; and (4) no masking or increased likelihood of secondary infection.

Preliminary observations on tetrahydrozoline (Visine) hydrochloride, a unique pressor amine, indicate that it has optimum activity at a low concentration (0.05%). It has been reported that this agent is an effective and well-tolerated ophthalmic decongestant.[1] Because of the apparent utility of this decongestant, it was decided to thoroughly evaluate tetrahydrozoline in the short-term and long-term management of more than 1,000 patients with conjunctivitis of varying etiology.

Materials and Methods

A total of 1,156 patients with allergic or chronic conjunctivitis were treated with tetrahydrozoline eye drops (0.05%). Seventy-one children, aged 3-12 years, and 1,085 teen-agers and adults, aged 12-91 years, were included in this group. The dosage

schedule was one drop instilled in each eye two to four times daily. As a rule, patients were maintained on therapy with this drug for periods ranging from two weeks to two months. To determine the effect on intraocular tension, over 100 patients with cataract received tetrahydrozoline daily for a period exceeding two years. Intraocular tension was determined periodically by means of the Schiötz tonometer.

Three hundred forty-eight patients with allergic conjunctivitis were included in this study. Of this number, 271 patients concurrently received antihistamines orally to help control other symptoms.

In this program there were 808 patients regarded as having chronic conjunctivitis. These cases were roughly classified as nonspecific conjunctivitis with chronic hyperemia, chronic conjunctivitis with cataract development (in various stages), or subsiding acute conjunctivitis. In the latter category, patients received decongestant medication after the local administration of antimicrobial agents or corticosteroids, as indicated.

Results

Allergic Conjunctivitis.—Tetrahydrozoline was found to be an effective decongestant in many cases of allergic conjunctivitis. The therapeutic efficiency was somewhat enhanced, as might be expected, by the simultaneous oral administration of antihistamine agents. Without antihistaminic therapy, the administration of tetrahydrozoline produced a good effect in 43 of 77 patients, gave a fair effect in 29 patients, and was ineffective in 5 patients. When administered with antihistamines, tetrahydrozoline effected a good result in 190 (70%) of 271 patients, a fair result in 74 patients (27%), and poor or no result in 7 patients. Of the 348 patients with allergic conjunctivitis, treatment with tetrahydrozoline produced a good result in 233 patients (67%) and a fair result in 103 (30%). Only 12 patients (3%) failed to report some beneficial response.

Chronic Conjunctivitis.—Tetrahydrozoline proved to be similarly useful in the management of chronic conjunctivitis. Good responses were seen in 73 (64%) of 116 patients with acute conjunctivitis in the subacute stage; a fair effect was noted in 38 patients (32%) with this indication; and 5 did not respond. Patients with nonspecific conjunctivitis with hyperemia responded almost equally well to therapy. Of 381 patients, 218 (57%) exhibited a good symptomatic response to treatment, 126 (33%) showed a fair effect, and 37 (10%) had no significant improvement. In 311 patients in whom a chronic mild secondary conjunctivitis or follicular conjunctivitis accompanied cataract development, a good response was observed in 158 (51%) and a fair effect in 104 (33%). Of the entire group of 808 patients with chronic conjunctivitis, treatment with tetrahydrozoline resulted in a good effect in 449 (56%) and a fair effect in 268 (33%). The onset of action was generally reported to occur immediately. The duration of response after each application varied from one to four hours.

Side-effects.—In no instance did intraocular tension increase. As previously mentioned, more than 100 patients receiving tetrahydrozoline for periods as long as two years were given periodic tonometric follow-up studies; in no case did pressure increase. None of the ophthalmic reflexes appeared to be impaired by the prolonged use of the drug. There was no apparent change in pupillary size. Twenty-five patients (2.1%) reported a mild stinging sensation with instillation; however, this effect dissipated rapidly. In no instances were rebound phenomena observed. In two cases, a mild subconjunctival hemorrhage occurred; however, it appeared that this effect may have resulted from trauma due to rubbing the eyes. Where cataracts existed there did not appear to be any detectable effect of tetrahydrozoline in retarding or accelerating the pathology. The incidence of secondary infection in this series was not materially different from that expected in any random series of patients; hence, the tetrahydrozoline was not thought to reduce local tissue resistance.

Summary

Treatment with tetrahydrozoline (Visine) hydrochloride ophthalmic drops provided effective decongestant action in 96% of the patients with allergic conjunctivitis and 89% of patients with various forms of chronic conjunctivitis. More than 100 patients with cataracts were treated with tetrahydrozoline over a period of two years; in no instance did intraocular pressure increase or any significant change occur in the development of the cataracts.

In addition to its excellent decongestant action, which provided prompt symptomatic relief, an important feature of tetrahydrozoline is its low incidence of side-effects. Side-effects were limited to a mild stinging sensation in 2.1% of the patients.

202 Weirfield St. (21).

The tetrahydrozoline hydrochloride used in this study was supplied as Visine hydrochloride by the Clinical Research Department, Research Division, Chas. Pfizer & Co., Inc., Brooklyn, N. Y.

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REPORT OF A SEROLOGICALLY PROVED CASE OF Q FEVER IN UTAH

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and
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Serologic evidence indicates that Q fever is widespread in Utah, but only one proved case has been reported previously. The second proved case occurred in a young man who worked with sheep hides. His illness started with severe malaise; subsequent symptoms were fever, headache, vomiting, profuse sweats, and cough. Radiographic examination of the chest showed a homogeneous pneumonia in the left upper lobe. Dramatic improvement began after chloramphenicol therapy was started. Q fever is caused by Ricksettsia burneti, primarily a parasite of the tick. Human-to-human transmission does not occur. The usual route of human infection is by inhalation of infected dust particles. Q fever presents as an undifferentiated pneumonia. It is specifically treatable with either chloramphenicol or any of the tetracyclines. Most of the Q fever in Utah is probably reported as influenza. Diagnosis is retrospective and is accomplished by demonstrating a rise in serum complement-fixing antibodies specific for Rickettsia burneti.

Q fever has been reported from most of the temperate and tropical areas of the world, including many states in the United States.[1] Excellent reviews dealing with this specific infectious disease are available.[2] Recently, Blank and associates [3] reported the county by county incidence of complement-fixing antibody to Q fever in residents of Utah. Serums from specimens submitted for serologic testing for syphilis, and from the American Red Cross donor service, enabled a sampling that ranged from 0.1% (Rich County) to 3.0% (Kane County) of the population of each county. Q fever antibodies were found either not at all (Daggett, Emery, Grand, Morgan, Piute, and Rich counties) or in as many as 7.7% of the serums examined (Sevier County). The authors remarked on the paradox of serologic evidence of Q fever in the absence of reports of clinical disease. This report of a case confirms the clinical presence of Q fever in Utah.

Report of a Case

A 20-year-old married male was admitted to the Salt Lake County General Hospital on Sept. 7, 1958, because of malaise and fever. Seven days before his entry, there was sudden onset of malaise sufficiently severe to cause the patient to stay home from his work as a handler of sheep pelts. Fever was noted four days before admission; dull suboccipital and bitemporal headache began the same day. Repeated vomiting, profuse sweats, and the onset of nonproductive cough three days prior to admission caused the patient to consult his physician. Penicillin was injected and tablets were prescribed, but no relief resulted. On the day of hospitalization, for the first time, a small amount of sputum was produced. There was no pleurisy, no sore throat, and no dyspnea or orthopnea.

Aside from influenza in the fall of 1957, the patient could recall no illnesses. The remainder of the patient's history and a review of systems was noncontributory. Neither the patient nor the members of his family had traveled outside of Utah within the six months before admission.

At entry, the patient's pulse was 80 beats per minute and regular, respirations were unhampered and regular at 16 per minute, blood pressure was 110/64 mm. Hg, and oral temperature was 104.2 F (40 C). There was obvious sweating; the skin was hot and moist and the face was flushed in appearance. There was no respiratory distress. The neck was supple and the trachea lay in midline. The respiratory movements of the chest were symmetrical. Vocal fremitus was increased over the upper anterior part of the left side of the chest, and there was decreased intensity of breath sounds with scattered, rather musical, inspiratory rales over the left side of the chest posteriorly. No abnormalities were found in the remainder of the physical examination.

The hematocrit was 44% and the icterus index 5. There were 11,400 white blood cells per cubic millimeter of blood, of which 32% were juvenile and 58% mature polymorphonuclear leukocytes, 9% lymphocytes, and 1% monocytes. Erythrocytes were normal in appearance, and platelets appeared adequate in numbers. A clean, midstream, specimen of voided urine had a specific gravity of 1.020, pH 5.0, no reducing substance or protein, and only a rare white blood cell per high-power field in sediment obtained by centrifugation. A stool specimen was negative for occult blood (guaiac).

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The blood urea nitrogen level was 15 mg. per 100 ml.; fasting blood sugar level, 98 mg. per 100 ml.; and total protein value, 6 Gm. per 100 ml., with 4 Gm. of albumin per 100 ml. Four blood cultures and one urine culture were sterile. Throat and sputum cultures disclosed no pathogens. The Venereal Disease Research Laboratory test was nonreactive; there were no cold agglutinins in the serum. Skin tests with purified protein derivative (first and second strength), blastomycin, coccidioidin, and histoplasmin were all negative.

Radiographic examination of the chest on the day of admission showed a homogenous, segmental pneumonia in the left upper lobe. Subsequent films on the fifth and ninth hospital days showed resolution (fig. 1).

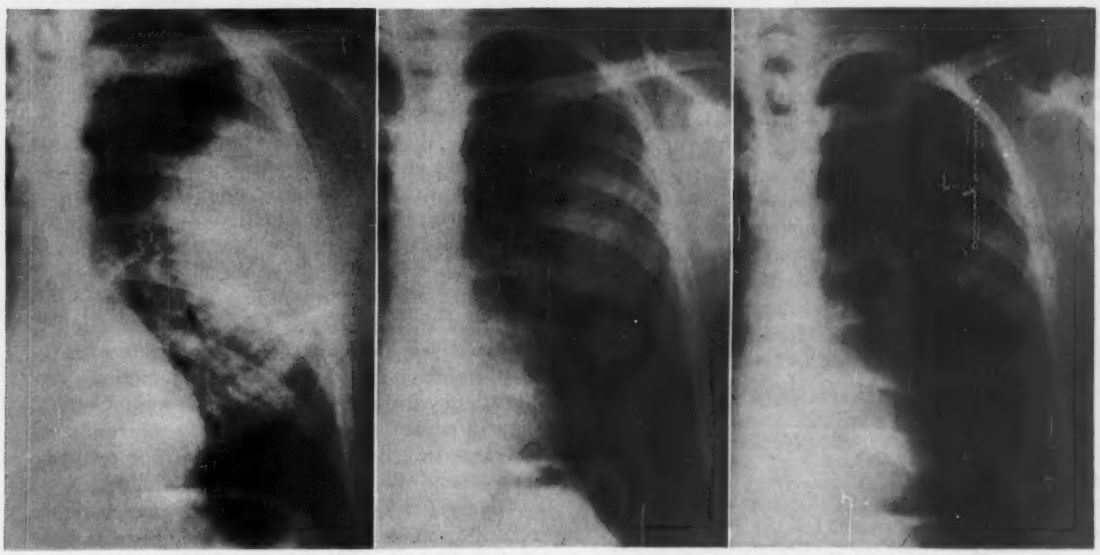

Fig. 1.—*Left*, a posteroanterior chest film taken at entry (sixth day of illness), disclosing homogenous density in left upper lobe. *Center*, considerable resolution on 15th day of illness, five days after chloramphenicol therapy was started. *Right*, continued but incomplete clearing of pneumonia of left upper lobe in film taken 32 days after onset of disease.

The hospital course (fig. 2) was one of little change until about 12 hours after chloramphenicol therapy was started on the fourth hospital day. Dramatic improvement began at this time, and thereafter recovery was uneventful. The patient was discharged home on Sept. 25, 1958. The results of complement-fixation tests were diagnostic of Q fever (see table). Serums were obtained from the patient's co-workers (15 specimens) and his immediate family (4 specimens); all were negative for Q fever antibodies by the complement-fixation test.

Comment

Q fever was first reported in Utah in 1956.[3] There have been no subsequent proved cases according to the records of both the Utah State Department of Health Laboratories and the Rock Mountain Laboratory of the U. S. Public Health Service in Hamilton, Mont.[4] In the survey of Blank and others,[3] 1.7% (statewide average) of Utah serums contained complement-fixing antibody to Q fever. Yet, in areas acknowledged to be endemic for Q fever, the incidence of positive Q fever complement-fixation reactions may be lower; e. g., in the greater Los Angeles area 8 of 687, or 1.2%, of routine premarital serums were positive.[5] The conclusion may fairly be drawn that there is Q fever in Utah but that the disease has, for the most part, not been diagnosed. Our patient's dramatic improvement with chloramphenicol therapy is testimony to the importance to the patient of considering Q fever in the differential diagnosis of pneumonia.

Q fever is caused by Rickettsia burneti. However, Q fever differs in many ways from the other rickettsioses. There is no distinguishing skin rash. Serums of patients convalescing from Q fever do not contain agglutinins for the Proteus species of the Weil-Felix test. Moreover, R. burneti is possessed of a tolerance to drying that is unique among the rickettsia. This environmental tolerance is likely associated with the epidemiology of Q fever.

It now appears that R. burneti is primarily a parasite of the tick. There is transovarial passage in the tick so that the association, tick-rickettsia, is not a mutually destructive one. Sheep, cattle, goats, and rodents are the usual mammalian extensions in ha-

bitat ventured by this micro-organism. Transmission to humans is a dead end for R. burneti, since human-to-human transmission does not occur. On the other hand, infection of domestic animals may lead to perpetuation and dissemination of mammalian parasitism, for R. burneti has been recovered from the milk of infected cows as well as from other secretions and excreta from a variety of infected animals.[2e]

For the most part, Q fever is clinically inapparent in sheep, cattle, and goats. However, there is serologic evidence that Q fever is spreading in cattle in the United States. In southern Idaho, spread has been noted particularly in dairy cattle [4b]; it remains to be seen whether an increase in human Q fever will follow.

Human Q fever is rarely, if ever, the result of a tick bite. The usual route of human infection is by inhalation of infected dust particles, for example, R. burneti–laden dust from detritus from hides or from wool.[6] Q fever in the human presents as an undifferentiated, or atypical, pneumonia. There are no characteristics which permit certain diagnosis on clinical grounds alone. Yet, with psittacosis, Q fever is remarkable for being a specifically treatable atypical pneumonia. Chloramphenicol, or one of the tetracyclines, will secure prompt amelioration of the disease, as demonstrated by the case reported here (fig. 2).

Course of Disease in Volunteers.—When untreated, the consequence of Q fever uncommonly is death but quite often is a significant morbidity.

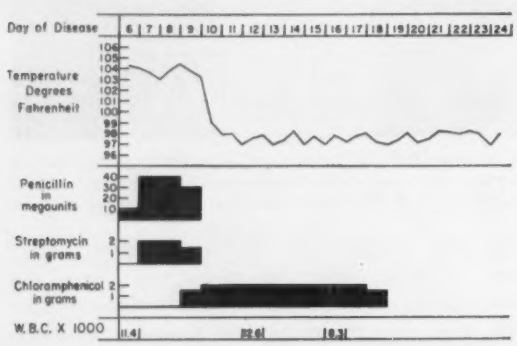
Day of Disease
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Temperature Degrees Fahrenheit
106 105 104 103 102 101 100 99 98 97 96
Penicillin in megaunits
40 30 20 10
Streptomycin in grams
2 1
Chloramphenicol in grams
2 1
W.B.C. X 1000
11.4
22.6
10.3

Fig. 2.—Graphic summary of clinical course of patient with Q fever. Dramatic defervescence and symptomatic improvement coincided with chloramphenicol therapy.

When studied in volunteers,[7] clinical Q fever resulted in 16 of 23 men exposed to various doses of aerosolized R. burneti (18 of these 23 men developed complement-fixing antibodies to Q fever). It must be kept in mind that Q fever induced in healthy young men by a laboratory strain of R. burneti may not be typical of the disease encountered in practice. For example, sudden onset of symptoms was not prominent and there were no instances of protracted disease (reported to occur in as many as 20% of patients with epidemic Q fever), of hepatitis, or of prolonged weakness and

*Complement-Fixation Titrations of Patient's Serums with Antigens of Q Fever and Psittacosis**

Date of Serum	Day of Disease†	Titer‡ for Q Fever	Titer‡ for Psittacosis
Sept. 10	9th	0	0
Sept. 17	16th	0	0
Oct. 3	32nd	128	0
Oct. 31	50th	128	...

* Carried out by the Bureau of Laboratories, Utah State Department of Health, Russell S. Fraser, M.S., Chief.

† Day of onset of symptomatic disease taken as 1st day of illness (Sept. 1, 1958).

‡ Titer expressed as reciprocal of highest dilution of serum yielding 4+ reaction.

weight loss during convalescence in this volunteer study.[8] Yet, certain aspects of the clinical course in volunteers are of interest in that they probably refer to the situation in nature.

Thus, although in this volunteer study the inhaled dose of R. burneti was increased 1,500 times from the smallest infecting dose, the incubation period decreased concomitantly only from 17 to 10 days. Low-grade fever with lassitude and anorexia marked the clinical onset of the illness. Real chills were rare, but temperature usually rose during the afternoon to around 103 (39.4 C) by midnight. Headache was a common complaint. Relative bradycardia and/or splenomegaly were sometimes observed. Physical signs of pneumonitis were not striking. About one-half of the men with clinical illness developed roentgenographic evidence of pneumonitis around the third or fourth day of illness.

Differential Diagnosis.—Diseases which may, on clinical grounds, be confused with Q fever include bacterial pneumonias, influenza, adenovirus respiratory infections, psittacosis, and primary atypical pneumonia. With bacterial pneumonias the onset with rigor, pleurisy, and productive cough is of differentiating value. In addition, there is the appearance of the patient with compromised respiratory movements and cyanosis. Leukocytosis is commonly marked. The finding of a bacterial pathogen on culture of the sputum is confirmatory.

Influenza, typically of sudden onset, with fever, headache, and cough, mimics Q fever closely. Very likely, the category "influenza" is the nominal repository of most of the Q fever which must occur in Utah—over 7,000 cases of influenza were reported in Utah in 1958, a nonepidemic year.[9] While pulmonary infiltration is radiographically present in about 50% of the cases of Q fever, pneumonia is not a manifestation of uncomplicated influenza. Diagnosis of influenza can be accomplished by

virus isolation (throat washings) or by examination of acute and convalescent serums for hemagglutination inhibition.

With isolation of the adenoviruses, it has become apparent that at least some of the cold agglutinin–negative, streptococcus MG–negative, primary atypical pneumonias are due to adenovirus infection. Types 4 and 7 have been associated with roentgenographic evidence of pneumonias, as well as types 1, 2, 3, and 18.[10] Virus isolation (throat washings, stool) and/or serologic studies (acute and convalescent serums) are required for diagnosis.

Adenovirus infection, psittacosis, and primary atypical pneumonia are often clinically indistinguishable from Q fever. While Q fever and psittacosis are curable with chloramphenicol or the tetracyclines, adenovirus infection and primary atypical pneumonia are not amenable to presently available anti-infectious agents. Psittacosis, while an uncommon cause of pneumonia, may be a severe illness. Diagnosis is ordinarily made by complement-fixation testing of acute and convalescent serums. The response to appropriate antibiotic therapy is a therapeutic trial that is of value in diagnosis. Primary atypical pneumonia is distinguished by engendering the production of cold agglutinins and/or agglutinins for streptococcus MG.

Diagnosis of Q fever by isolation of R. burneti has been accomplished by inoculation of blood, sputum, spinal fluid, and urine obtained during the acute, febrile stages of the disease into guinea pigs or embryonated eggs. However, the agent is so infectious to laboratory personnel that diagnosis by isolation is rarely justified. Commonly, diagnosis is retrospective and is accomplished by demonstration of a rise in serum complement-fixing antibodies specific for R. burneti; an increase from no detectable antibody in a serum specimen obtained during the acute illness to a titer of 1:32, or higher in serum collected about two weeks later (convalescent specimen), is diagnostic. A series of serums is required when antibiotic therapy has been instituted. With specific therapy there may be several weeks' delay in antibody response, so that a diagnostic rise will not be apparent until six to eight weeks after onset of illness.[7] The complement-fixing antibodies are highly specific and may persist for years.

Summary

A case of serologically proved Q fever occurred in a young man who works in a plant processing sheep hides. Although this is the second proved case of Q fever in Utah, serologic evidence indicates Q fever is of both widespread and frequent occurrence in the state.

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This study was aided in part by a grant from the National Institute of Allergy and Infectious Disease, United States Public Health Service.

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THE TEETH IN OLD AGE.—When examining the mouth, it should be remembered that the presence or absence of teeth is more vital than the presence or absence of infection. Dyspepsia is commoner in the toothless than in those whose oral state is foul. Removal of infected teeth in old people only occasionally coincides with a turn for the better. Many elderly folk never get used to dentures, so that possession of false teeth does not always indicate their use for mastication. Some natural teeth in the jaw are worth more than a denture taken out of the mouth before meals.—Trevor H. Howell, Some Clinical Signs In Old Age: Some Practical Points in Geriatrics and Gerontology, Ed. 2, H. K. Lewis and Co. Ltd., London, 1950.

CLINICAL EXPERIENCE WITH A NEW ERYTHROMYCIN DERIVATIVE, ERYTHROMYCIN PROPIONATE

REPORT OF ONE HUNDRED FIVE CASES

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and
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The effects of orally administered erythromycin propionate have been observed in 105 patients. Most of them took it four times a day or every six hours in one or two capsules containing 0.25 Gm., and in a few cases this medication was continued as long as two months. The diseases treated were particularly those caused by Staphylococcus aureus, and the series included cases of pustular acne, furuncles, carbuncles, and pyodermas. Good results were obtained in 98 patients, 10 of whom had previously failed to respond to other forms of chemotherapy. Only eight patients had side-effects such as anorexia or vomiting, and diarrhea occurred in but one patient. This derivative, erythromycin propionate, has the advantage over the parent compound in that it produces higher concentrations in the blood after oral ingestion.

Erythromycin has been found to be an excellent antibiotic with few serious side-effects.[1] In a number of studies it has compared favorably with penicillin and other antibiotics in its clinical effectiveness. Among the minor side-effects, nausea and mild diarrhea have been noted. A disadvantage to the use of this antibiotic, as with others, is that a number of resistant staphylococcic strains have been found in hospital-acquired infections. It is possible that some of these infections would be amenable to higher blood levels of the antibiotic.

A new derivative of this drug, erythromycin propionate,[2] produces high blood levels within half an hour after ingestion and peak concentrations approximately four times those obtained with erythromycin tablets.[3] This compound, a true ester, produces higher blood levels than the more loosely bound erythromycin stearate,[4] which behaves like the base. With greater absorption it is possible that the minor gastrointestinal upsets from residual drug in the intestines might be avoided. Serum levels are more predictable than the widely variable levels found with coated-tablet erythromycin therapy.[3c] A third advantage is the rapidity with which high serum levels are obtained after oral medication.[5] A comparison of the antibacterial spectrum of erythromycin propionate with that of the parent compound has shown them to be identical.[6]

Acute and chronic toxicity studies in mice and rats have disclosed no pathological findings after large doses of the new ester. Higher serum levels are obtained in animals with the ester than with the erythromycin base because of its limited excretion in bile.[3a] In man very little degradation of the ester takes place in the body, as 80% of the erythromycin excreted in the urine is unchanged erythromycin propionate.[3a]

This paper deals with our clinical experience with erythromycin propionate in a variety of diseases, particularly those caused by Staphylococcus aureus.

Materials and Methods

Selection of Patients.—From July, 1958, to December, 1958, erythromycin propionate was given to patients seen in consultation by one of us (I. M. S.) and in the medical, dermatological, and orthopedic wards of the University Hospitals. Some patients were treated in the dermatology out-clinic and student health department. With the exception of some of the latter two groups, all patients had a routine physical examination, blood cell count, and urine examination. Forty-nine patients had a blood cell count after treatment with the drug. The group of patients was composed of 59 males and 46 females who ranged in age from 6 to 89 years. The 37 hospital inpatients were seen daily to evaluate the clinical response and to note side-effects. Follow-up cultures were taken where indicated.

Bacteriological Studies.—Blood, sputum, urine, and other cultures were done in either the routine bacteriological laboratory or the laboratory of the infectious disease division. Both the incorporation of antibiotics in blood agar plates and the disk method of performing sensitivity tests were used (see table). Cultures were obtained from all but five of our patients.

Therapeutic Regimen.—Erythromycin propionate was given orally in capsule form, 0.25 or 0.5 Gm. four times a day or every six hours in most cases.

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Therapy was continued for a median period of six days, but in a few cases it was given for as long as two months.

Results

Pustular Acne.—Seven patients, aged 16 to 24 years, had clinical diagnoses of acne. Staph. albus was cultured from the lesions in four and Staph. aureus in two, with no growth from one patient's lesions. The therapy varied considerably: on the average 250 mg. three times a day was followed in four days by a period of the same dose twice daily for one to two weeks and then long periods with 250 mg. once daily. All the patients, with one exception, showed improvement. The one exception was a girl who developed nausea and vomiting after taking 1 Gm. of the medicament; it was then withdrawn. We feel that a more vigorous therapeutic regimen would be more successful in a shorter period of time.

Furuncles.—Twelve patients with bacteriologically confirmed furunculosis were treated for an average of seven days with 250 mg. of erythromycin propionate, given four times a day, with improvement in all. Three patients, however, had a recurrence of their boils, and in one case the staphylococci previously sensitive to erythromycin were now resistant. In three cases incision and drainage was necessary. Three other patients received, concurrently, intranasally given bacitracin.

Carbuncles.—Four men were treated for carbuncle with an average dose of 18 Gm. over a 14-day period. Two carbuncles had to be drained. All the patients did well and were apparently cured.

Stasis Ulcers Infected with Staphylococci.—Five patients (including two diabetics) with stasis ulcer (all were females aged 69-81 years) were treated with 10-25 Gm. of erythromycin propionate over a 10-to-25-day period. There was a clinical and bacteriological cure in four patients and marked improvement in one. Pinch grafting was also done in two. Two days after a 10-day course of therapy with the erythromycin derivative, one patient died after hematemesis. A postmortem study was not done. A detailed case history of this patient is presented below.

Miscellaneous Staphylococcic Pyodermas.—Eighteen patients, including three with postoperative wound infections, two with impetigo, and two with paronychia, were treated with 4 to 56 Gm. of erythromycin propionate over a 3-to-42-day period. There were 14 patients with clinical cures and 2 with improvement, both of whom had pyoderma gangrenosum and required prolonged topical and systemic therapy. One of the patients with paronychia had tularemia with secondary staphylococcic involvement; this case is discussed below.

Osteomyelitis.—An 8-year-old boy with acute osteomyelitis of the metaphysis of the right fibula and a subcutaneous abscess did well with surgical treatment followed by therapy with erythromycin propionate given four times a day for three weeks. Three women and three men with chronic osteomyelitis showed considerable improvement with an average treatment of 39 Gm. of erythromycin propionate over a 28-day period. (All but one of these patients had operative drainage as well.) As at least a two-month period of follow-up study has elapsed in five of these patients without recurrence, it is tempting to call them cured; at least the disease is arrested. One patient showed relapse four months after the end of treatment.

Staphylococcic Pharyngitis.—In three girls and five men, aged 18 to 31, acute pharyngitis was present and culture medium inoculated with throat swabs grew pure cultures of coagulase-positive hemolytic Staph. aureus. All these patients were treated with 250 mg. given four times a day for an average of four days, and all recovered uneventfully from their acute pharyngitis. One 26-year-old girl complained of mild drowsiness for three days with a feeling of drawing-in around the mouth and swelling of the eyes. There was no swelling of the eyes on examination, and the subjective feelings disappeared while the medication was continued.

Antibiotic Sensitivity of Strains of Staphylococcus Aureus Isolated from Patients

Strains Tested, No.	% of Strains Resistant to: Penicillin (1 and 10 Units/Cc.)	Streptomycin (5 and 50 Meg./Cc.)	Tetracycline (5 and 50 Meg./Cc.)	Chloramphenicol (5 and 50 Meg./Cc.)	Erythromycin (1 Meg./Cc.)
32	62.5				
31		35.5*			
29			48.3		
24				0†	
32					12.5

* 16.5% of the strains were only sensitive to 50 meg./cc.
† 80% of the strains were only sensitive to 50 meg./cc.

Streptococcic Pharyngitis.—Fourteen patients (seven males and seven females) with streptococcic pharyngitis were treated with an average dose of 7 Gm. of erythromycin propionate over a six-day period. All were cured without any side-effects. One patient had to discontinue treatment because of nausea and two or three loose stools daily.

In two further cases of pharyngitis no pathogenic bacteria were isolated. In one patient this therapy was discontinued after one day because of nausea and vomiting. Both patients recovered without other side-effects.

Pulmonary Infections.—In six patients with purulent bronchitis, Staph. aureus (2), beta hemolytic streptococci (1), and normal flora (3) were isolated from the sputum. All of them improved on an average dose of 8 Gm. of the antibiotic given for seven days. One patient had a residual dry cough. There were no side-effects.

Three patients with pneumonia were cured (one case due to Pseudomonas aeruginosa and two to Staph. aureus). One patient complained of epigas-

tric distress. In one other patient, however, the pneumonia was a complication of bronchogenic carcinoma. He improved temporarily with treatment. A 45-year-old woman who had staphylococcic empyema complicating a preceding Escherichia coli empyema was much improved after 35 days of treatment with 2 Gm. daily. A 29-year-old woman with bronchiectasis and pansinusitis infected with beta hemolytic streptococci showed no change after two weeks' treatment, but she had anorexia and anxiety.

Sinusitis.—Three patients with chronic sinusitis were improved (one case each due to Staph. aureus, Staph. albus, and Diplococcus pneumoniae). Two of them had preceding infections with Candida albicans. One, with intestinal infection, had no exacerbation of his diarrhea while he took the medicament along with nystatin (Mycostatin). The other, a 41-year-old multipara, had vaginitis which increased slightly while the medicament was given despite use of nystatin suppositories. After a break in therapy, for this reason, further treatment led to increased improvement in the sinusitis. Later treatment with tetracycline, however, produced still more improvement in this chronic pneumococcic sinusitis. These patients had an average dose of 21 Gm. of erythromycin propionate over a 16-day period.

Miscellaneous.—In addition, four patients were treated with the ester but assessment of their results was complicated by the concurrent use of chloramphenicol or novobiocin. All but one of them were cured, and none had side-effects. One patient, a 64-year-old woman with a left frontal abscess caused by Staph. albus, did not improve. The organisms proved to be resistant to erythromycin, and she showed improvement on tetracycline therapy.

An interesting group of five patients was treated initially with an average of 5 Gm. of erythromycin base and was then switched to therapy with erythromycin propionate. Several preferred the propionate form of the drug over the enteric coated base because they were free from abdominal discomfort. Three other patients who had taken the erythromycin base in the past expressed the same preference. All the patients switched to therapy with erythromycin propionate were cured without side-effects.

Side-effects.—The over-all impression was that patients on therapy with this drug were remarkably free of discomfort and there were no serious side-reactions to worry the physician. No superinfection was found, except possibly a mild exacerbation of an already present vaginitis due to C. albicans. No allergic phenomena, such as skin eruptions, pruritus, anaphylaxis, or asthma, were seen. None of the patients developed clinical evidence of bone marrow damage. In 49 patients blood cell counts after therapy were normal. There was no clinical or laboratory evidence of interference with liver or renal function. No patients complained of deafness or vertigo. No drug fever was found.

Gastrointestinal side-effects were minor in degree. Four patients complained of anorexia, nausea, or vomiting, but in only two was it necessary to stop the drug therapy. Two other patients complained of epigastric distress; one experienced it particularly with his evening and early morning doses taken on an empty stomach. Both, however, were successfully treated. Two patients had two or three loose, brown, watery stools daily. We stopped treatment in one because of this; the case of the other is reported in detail below. In one case fatal hematemesis occurred two days after the end of a 10-day course of erythromycin propionate therapy. This is reported in case 3.

Report of Cases

CASE 1.—A 29-year-old veterinarian had an acute exacerbation of a chronic sinusitis associated with acute laryngitis. He was coughing up a moderate amount of purulent sputum and had vague respiratory distress. Apart from purulent nasal discharge and sputum, physical examination was normal. A heavy pure growth of Staph. albus was obtained from the sputum and nasal swabs.

Because of a misunderstanding, he took 750 mg. of erythromycin propionate four times daily for three days. This caused diarrhea with gaseous, loose, watery, brown stools three times daily. After two days off the drug therapy he resumed treatment with 500 mg. four times a day without further distressing side-effects. The laryngitis, bronchitis, and sinusitis responded promptly to treatment.

CASE 2.—A 24-year-old physician when out hunting found a sick rabbit at the side of the road. He killed it and later dissected it along with five other rabbits, and none had any sign of disease. Three days later he developed axillary lymphadenopathy with chills and fever. In one or two days he noticed painful subungual lesions, from which pus could be expressed, on his thumb and ring finger. From the third day after exposure until the fifth day he took 250 mg. of tetracycline four times a day and felt improved except for the local lesions on the fingers. Fourteen days after exposure he developed fever and axillary pain for a second time. Two days later his titer against Pasteurella tularensis was 1:80; nine days later it was 1:640; and a further seven days later it was 1:2,560. At the time of the relapse the finger lesions were secondarily infected with Staph. aureus resistant to erythromycin, penicillin, streptomycin, and tetracycline and sensitive

only to high doses of chloramphenicol or novobiocin. This report was unfortunately mislaid, but the lesions healed rapidly when 500 mg. of erythromycin propionate was given four times a day for five days. On this medication the axillary adenitis and malaise disappeared. It is possible that his tularemia was cured. The patient was given the choice of continuing the erythromycin propionate therapy or switching to an agent of known antitularemia potency. He decided to stop the erythromycin propionate therapy and received streptomycin intramuscularly, 1 Gm. twice daily for two days and 0.5 Gm. twice daily for five days. During this period he returned to his work. Two days later subungual pus reappeared in the thumb. The strain isolated on this occasion had the same antibiotic sensitivities as the previous one. A further two days later he developed a nasal furuncle associated in eight hours with spreading cellulitis of the left maxillary area with swelling particularly in the infraorbital region. He was afebrile. He was readmitted to the hospital and treated with 500 mg. of chloramphenicol four times a day and 250 mg. of novobiocin four times a day. The first drug was given for 4 days and the second for 10 days, and intranasally given bacitracin was used concurrently. He recovered uneventfully.

CASE 3.—A 74-year-old housewife fell and broke her hip. She was admitted to a local hospital and on the second day was febrile and mildly confused. On the third day she was admitted to the University Hospitals and closed reduction of her left hip was done. History-taking was difficult because of the patient's confusion. She was noted to have sinus tachycardia confirmed by electrocardiogram and to have a rectal temperature of 102 F (38.8 C). There was slight cardiac enlargement but no evidence of cardiac failure. Circulation time and venous pressure were normal. A varicose ulcer was present, and a culture showed hemolytic Staph. aureus resistant to penicillin and sensitive to erythromycin, tetracycline, and high levels of chloramphenicol or streptomycin. On the third day of her admission her temperature was 102.6 (39.1 C) rectally. She was treated with 250 mg. of erythromycin propionate given every six hours. While receiving this treatment over a 10-day interval, her varicose ulcer healed but she remained febrile with a leukocytosis. She continued to have tachycardia with hyperpnea and was disoriented but had no localizing neurological signs. Her tachycardia did not respond to digitalization. Two days after discontinuing her antibiotic therapy she vomited 300 cc. of coffee-ground vomit and died shortly thereafter. This patient died of an undiagnosed illness, and we are unable to say what part the antibiotic might have played in the hematemesis.

CASE 4.—A 73-year-old woman was transferred to the University Hospitals from another hospital. Six months previously she had received a Whitman's arthroplasty for osteomyelitis. At the time of admission she had an abscessed hip and lobar pneumonia. Staph. aureus resistant to penicillin and sensitive to erythromycin, streptomycin, tetracycline, and a high concentration of chloramphenicol was isolated from the hip abscess and from the sputum. She improved steadily on therapy with 250 mg. of erythromycin propionate given four times a day over a 47-day period.

CASE 5.—A 35-year-old laborer had had a history of chronic osteomyelitis since the age of 15. Nine days prior to admission at this hospital on Oct. 8, 1958, the patient developed pain in the anterior part of the left thigh. This was treated at his local hospital with rest and antibiotics without improvement. Physical examination on admission showed the left leg 4 in. shorter than the right, fusion of hip in 150 degrees flexion, and a 0.5-cm. deep sinus tract over the left greater trochanter. Treatment consisted of bed rest and novobiocin, 250 mg. every six hours for one week, and he was discharged on Oct. 15, 1958, improved.

Shortly after discharge the patient developed pain over the medial condyle of the left femur without joint pain. He was readmitted on Oct. 30, 1958. Physical examination at this time revealed local tenderness over the condyle with some inflammation and a temperature of 101.2 F (38.4 C). X-ray examination showed bony destruction of the affected area. The patient was treated with chloramphenicol and penicillin with transient subjective improvement. Three days after admission his temperature rose to 103.4 F (39.6 C). A greatly swollen knee, containing pus, developed, and culture showed hemolytic Staph. aureus sensitive to erythromycin, penicillin, streptomycin, tetracycline, and chloramphenicol at high levels.

An arthrotomy was done with instillation of triple sulfonamides. The patient continued to receive chloramphenicol with triple sulfonamides for two days with a slight improvement in his fever. Two days after the arthrotomy, chloramphenicol therapy was discontinued and that with erythromycin propionate was started with 500 mg. every six hours; triple sulfonamide treatment was continued an additional two days. On Nov. 10, 1958, a decompression osteotomy and drainage of the intramedullary canal was done. After this the patient became afebrile with good wound healing and minimal drainage. Twenty-six days after the start of therapy with the erythromycin derivative it was discontinued because of epigastric distress. Four days after this a low-grade temperature elevation was noted for four days. A reculture of the sinus drainage again grew hemolytic Staph. aureus; the

sensitivities were unchanged. The patient was placed in a hip spica and discharged on therapy with erythromycin propionate, 500 mg. every six hours for five days. At the time of writing he is well.

Comment

Erythromycin propionate is useful in treatment of a number of common infections and has been effective in treatment of a number of less common and more serious infections. In our hands it has been particularly helpful in the treatment of staphylococcic disease. As its spectrum covers staphylococci, streptococci, and pneumococci, it should be useful in general practice.

Studies done by others have revealed early and predictably high levels of the antibiotic in the blood after oral administration. In our experience therapeutic success has been more consistent with this compound than with the parent erythromycin. Patients complain less of minor side-effects. Diarrhea occurred only once in our series, if one omits the case of overdosage. This is considerably less than the 7.6% reported with erythromycin base.[1b] The lack of superinfections is an additional benefit.

Several of the patients with furunculosis responded well to the treatment initially but later showed relapse. We have referred elsewhere[7] to the "ping-pong-like" transfer of staphylococci from carriers in the family group or from carriage areas in the patient and believe that these recurrences are due to an ignorance of this fact.

Patients with osteomyelitis often require prolonged treatment. This new drug appears to be useful for the treatment of this disease. The 74-year-old patient who died with hematemesis was already seriously ill and disoriented with fever, tachycardia, and hyperpnea of undiagnosed etiology. In the absence of an autopsy it would be unfair to attribute the hematemesis to the drug alone, although the aggravation of a preexisting lesion appears quite possible.

Summary

Erythromycin propionate was used in the treatment of 105 patients with a variety of common infections. Sixty-four patients had Staphylococcus aureus infections and 16 had beta hemolytic streptococcic infection. The remainder were caused by a variety of organisms. Good results were obtained in 98 patients (94%). Ten of them had previously failed to respond to other forms of chemotherapy. The strains of bacteria that were isolated were resistant to the drug after treatment in only two patients.

The average duration of treatment was 12 days, with a range of from 1 to 55 days. The highest dose given was 70 Gm. over a 35-day period. No cases of fungus or staphylococcic superinfection of the alimentary tract were found. The only side-effects were anorexia, nausea, vomiting, or diarrhea, one or other of which occurred in 7.6% of the patients. Diarrhea occurred in less than 1%. In only three cases was there any need to discontinue therapy because of the side-effects. There were no fatalities definitely attributable to the drug. We did not find any hypersensitivity or clinical or laboratory evidence of bone marrow, liver, or renal damage. In one patient a fatal hematemesis, not believed to be the result of the treatment, occurred two days after the end of a course of therapy. The drug is considered to be useful and convenient in treatment of a number of common infections.

This study was aided, in part, by a grant from Eli Lilly & Company, Indianapolis. The erythromycin propionate used in this study was supplied as Ilosone by that company.

Miss Marion Jones, M.Sc., supplied the reports from the bacteriological laboratory. Drs. Mary E. Godfrey, Ellia Ch. Hazard, William B. Bean and staff, L. Boulware, Carroll B. Larson and staff, Chester I. Miller, Chris E. Redcliffe, and P. C. Stivrins aided in this study.

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CLINICAL NOTES

EWING'S SARCOMA OF THE TOE

Albert R. Andrisek, M.D., Cleveland

A review of the literature regarding Ewing's sarcoma indicates that tumors located in small bones are apparently a rare finding. In 75% of cases, long bones of the extremities, including the shoulder girdle, were involved; lower extremities were involved in 50% of cases. The predilection for metaphysis in long bones was noted. In the series reported by McCormack, Dockerty, and Ghormley [1] no cases of phalangeal tumors are reported. In a study of 424 primary malignant tumors of the bone, Meyerding [2] found that Ewing's sarcoma of all bones constituted approximately 27%.

The condition is rare. At the Mayo Clinic, primary bone tumors occur in about 1 in 10,000 patients. The only case seen in a phalanx of the toe is reported by Geschickter (tumor of bone, 1930). He mentions a few that were located in the tarsus and metatarsus. There is a report [3] of Ewing's sarcoma of the cuneiform bone in a 14-year-old boy, who remained well for two years after amputation below the knee and finally developed pulmonary metastases. No other cases of Ewing's sarcoma in small bones could be found in the medical literature since 1945.

Ewing's sarcoma is a disease of childhood and adolescence; more than half of the cases occur in persons under 20 years of age and 80% in persons under 30 years of age. Males are affected twice as often as females. The onset of this disease is insidious; aching, boring pain is generally the first symptom. The pain rapidly increases in persistence and severity, being accentuated during rest. Roentgenologic findings are not as typical or diagnostic as some of the literature might lead one to expect.

Report of a Case

A 20-year-old male was seen for a routine examination on Sept. 24, 1954, at which time he complained of pain and redness of the large toe, right foot, which had been present for about two weeks. He thought he might have stubbed the toe but was not certain. He admitted having partaken in some beer drinking and wondered if he might not have gout.

The patient's history included the usual childhood diseases, ruptured appendix, and tonsillectomy. Physical findings on examination were essentially negative, except those of the large toe, which appeared reddened and tender under pressure, with some swelling and apparent induration. An x-ray of the toe (fig. 1), on Sept. 24, showed dense proliferation of the proximal phalanx. X-rays of the hands, left foot, pelvis (both hip joints), and chest were negative. The laboratory report showed uric acid level, 6.2 mg. per 100 cc.; hemoglobin level, 15.0 Gm. per 100 cc.; white blood cell count, 6,700 per cubic millimeter; and differential count within normal limits.

Fig. 1.—X-ray of right great toe, showing dense periosteal proliferation of proximal phalanx.

From St. Vincent's Charity Hospital.

A biopsy (fig. 2) was done on Oct. 6, 1954. Grossly the tissue fragments varied from 0.5 to 2 cm. in greatest dimension. They were light tan to gray and sectioned with moderate resistance. The cut surfaces were smooth and glossy. Some of the fragments were friable and soft.

Microscopic sections revealed thick anastomosing cords and sheets of small cells forming broad collars around small vascular spaces. The cells were fairly uniform in size, shape, and staining quality. They displayed scanty pale pink to stainless cytoplasm with indefinite cell borders. The nuclei were prominent, oval to round, and occasionally irregular. They varied slightly in staining quality but in general were pale with somewhat darker borders. Occasional nucleoli were identified, and mitotic figures were not infrequent. The cells were compact in some areas but more loosely arranged in others. While they surrounded vascular spaces, they did not

Fig. 2.—Biopsy specimen of proximal phalanx of right great toe.

encroach on the walls of the blood vessels, whose lumens were free of tumor cells. Formations of fibrous septums occasionally gave the tumor an alveolar appearance.

Decal sections showed thick bony trabeculae surrounded by fibrous tissue infiltrated by loosely arranged nests of tumor cells. Occasional cells infiltrated marrow spaces which were undergoing fibrosis. No multinucleated giant cells of tumor origin were identified. A diagnosis of Ewing's sarcoma was made.

Disarticulation of the proximal phalanx with removal of one-third of the metatarsal was done on Oct. 11, 1954.

On Feb. 2, 1955, the patient complained of pain in right groin and over the right femur anteriorly. X-rays taken on Feb. 22, 1955, were negative. X-rays taken on June 18, 1955, showed metastasis to the right hip joint and left ribs (fig. 3 and 4). On June 24 palliative x-ray therapy (250 kv. to the right hip and ribs) was begun; it was continued to Oct. 21, 1955, with a partial response and with decrease in the size

Fig. 3.—X-ray showing metastasis to right hip.

Fig. 4.—X-ray of chest, showing metastasis to ribs.

of the lesion and some alleviation of pain. On Jan. 8, 1956, metastasis to the left temperoparietal bones was noted. On Jan. 13, 1956, the patient died.

Comment

Since the etiology is obscure and the disease is primarily of childhood, youth, and early adult life, rarely seen in persons over the age of 25, the clinical features of pain, variable in intensity with a lump or swelling, can be confused with a bone infection.[4] Primary bone sarcoma of a phalanx is so rare as to be considered almost nonexistent.[5] Unfortunately, despite the control of the primary tumor, metastases nearly always develop later. Though these in turn yield to treatment, the patient dies during the continuing hopeless struggle to keep up with the widespread disease by radiation therapy. The progress of the disease varies markedly, being exceedingly rapid in some cases while in others a fatal termination may be long deferred. The average life expectancy is usually less than two years.

Summary

A case of Ewing's sarcoma has occurred, with reactive bone formation in sun ray pattern as seen in figure 1. An extensive but incomplete survey of the literature has disclosed only one case of Ewing's sarcoma of the phalanx, reported by Geschickter. Metastasis is rapid, with death occurring between two and five years after onset of the disease.

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Dr. E. J. O'Malley assisted with x-ray interpretation and therapy in this study. Dr. Wm. Hoffman made pathological interpretations and studies, and Miss E. Slusarczyk assisted with the statistical analysis.

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PERICARDITIS IN ASSOCIATION WITH CHICKENPOX

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Byron H. Terk, M.D., Hempstead, N. Y.

The occurrence of pericarditis in association with acute infectious disease is not uncommon and has been reported frequently in the past decade.[1] Griffith and Wallace,[2] in 1953, reported on the etiology of pericarditis and recorded 15 different causes for this disease; the highest percentage (15.8) of cases is classified as being due to idiopathic disease. They make no mention of chickenpox (varicella) as a causative agent. In other reports,[3] a relationship between viral disease and pericarditis of the so-called benign nonspecific type has been definitely established. Up to now, there have been no reports in the literature showing the coexistence of pericarditis with chickenpox; however, the presence of myocarditis with chickenpox is not unknown. Hackel [4] described seven cases of chickenpox ending fatally in which the autopsy reports showed myocarditis not suspected clinically. Epicarditis also was demonstrated to a moderate degree in six of these cases. It is therefore considered of interest to report the following case, which appears to be clinically typical of acute benign pericarditis occurring during the course of an illness diagnosed as chickenpox.

From the Division of Internal Medicine, Meadowbrook Hospital, Hempstead, N. Y.

Report of a Case

A 33-year-old male was admitted to Meadowbrook Hospital with a two-day history of malaise and fever, and a 12-hour history of headache, photophobia, and skin eruption. The eruption was first noted on the head and almost simultaneously on the face, neck, and upper extremities. There were no other systemic or local symptoms. The patient's son had had chickenpox three weeks prior to the present illness. The patient had never had chickenpox and had been vaccinated twice for smallpox, once as a child and once while he was in the armed services, in 1943.

On his admission to the hospital, the patient's temperature was 102 F (38.9 C); he was uncomfortable but in no acute distress. The skin was the site of a macular, papular, vesicular, and rarely pustular rash in all stages of development. This rash was present on the scalp, face, arms, legs, and torso.

The lungs were clear to auscultation and percussion. The heart was not enlarged; there were no murmurs or thrills. The remainder of the physical examination was not remarkable.

Treatment initially was only symptomatic. The temperature continued to be elevated to approximately 101 F (38.3 C), and the clinical course was uneventful until the second hospital day, at which time he suddenly complained of severe aching pain in the left anterior part of the chest, with radiation to the back, neck, and upper part of the left arm. Extreme restlessness without diaphoresis or cyanosis soon appeared. The pain was not increased by respiration or motion. The pulse was 70 beats per minute; the blood pressure was 130/90 mm. Hg. The heart sounds were somewhat distant, but murmurs or friction rubs were again not discernible. The lungs were clear to auscultation and percussion. There was no local muscular tenderness. An electrocardiogram taken shortly thereafter revealed regular sinus rhythm, elevation of the S-T segments in leads 2, 3, and aVF, and depressed S-T segments in aVR, aVL, V_1, and V_2, with inverted T waves in V_1, V_2, and V_3 (fig. 1). Following the onset of these symptoms, the blood pressure dropped to a low of 80/50 mm. Hg during the next six hours but subsequently rose to 100/60 and remained elevated until the patient's discharge. An electrocardiogram taken 18 hours later showed a return to normal of the S-T segments. The patient had a similar attack of pain on the third hospital day, at which time a third electrocardiogram was made.

A chest film revealed the aorta arching to the right, which was confirmed by barium swallow, but otherwise there was no enlargement or other abnormality. The white blood cell count ranged from 6,000 to 6,400 per cubic millimeter on the first, second, and fourth hospital days. After initial polymorphonuclear cytosis, the remaining white blood cell counts revealed lymphocytosis. The sedimentation rate was 17 mm. per hour on the second hospital day and 35 mm. on the fourth hospital day. The fasting blood sugar level was 86 mg. per 100 cc., the cholesterol level 196 mg., and the blood urea nitrogen level 16 mg. Serial electrocardiograms show the progressive changes one would expect to find associated with an acute pericardial disease. Figure 2 is a tracing taken after the second attack and shows T-wave changes further suggesting the presence of localized pericarditis. The tracing done three days after this one showed definite

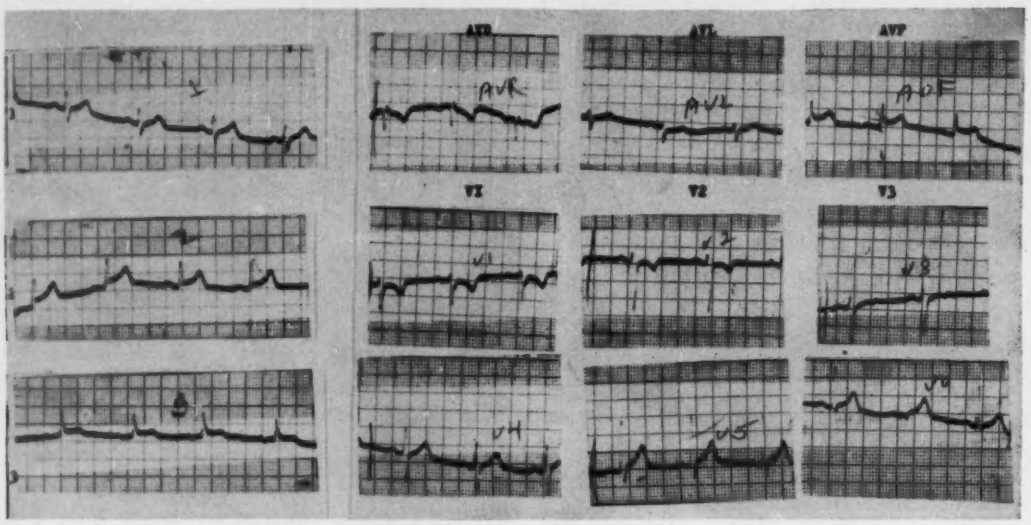

Fig. 1.—Electrocardiogram taken at onset of precordial pain, showing S-T and T-wave changes compatible with diagnosis of acute pericarditis.

retrogression of the previous findings (fig. 3), and the final electrocardiogram, taken seven weeks later, shows a complete return to normal.

The patient had become afebrile and insisted on signing his release on the eighth hospital day. He reported once more to the clinic seven weeks after his discharge, and his course has not been followed since.

Comment

This case is a classic one of chickenpox, with a typical history of exposure to that disease, the subsequent development of the characteristic exanthema, and the final retrogression of all signs and symptoms. However, shortly after the onset of the rash and fever the patient developed sharp chest pains, further increasing malaise, a decreasing blood pressure, and electrocardiographic changes interpreted as being those associated with

pericarditis. A recurrence of his complicating discomfort reappeared in two days, with additional confirmatory electrocardiographic findings; such recurrence is not uncommon with viral (benign) pericarditis and has led to the use of the term "acute relapsing pericarditis." [1a] The rather rapid and relatively complete disappearance of all evidences of pericarditis is an expected result. Although this case did not present all of the classic phenomena that occur with so-called viral pericarditis, there appear to be enough changes to establish this diagnosis: the typical clinical course as manifested by the nature of the complaints, its acute onset, its subsidence, and its recurrence associated with the characteristic electrocardiographic changes. The fact that a friction rub was not heard and that cardiac enlargement was not noted merely suggests that the pericardial involvement was not of sufficient degree to produce pericardial effusion. The absence of changes in the quality of the heart

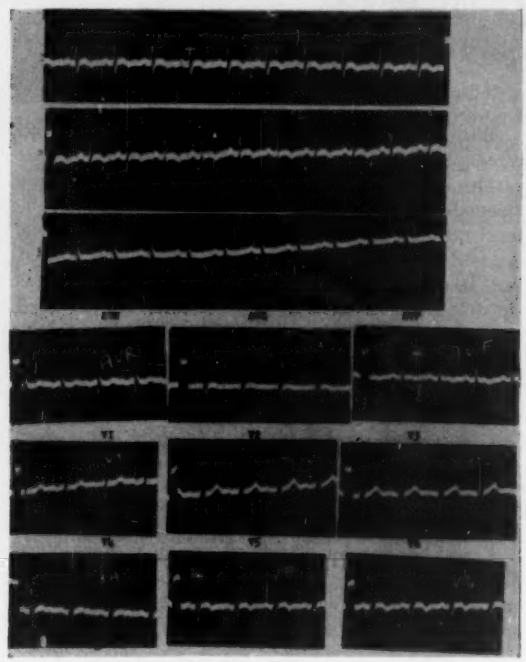

Fig. 2.—Electrocardiogram taken following second attack of precordial pain, showing even more pronounced T-wave changes.

sounds or in the rhythm indicates that myocarditis was not present to any detectable or significant degree.

Despite the frequency of the occurrence of pericarditis in relationship to acute infectious diseases, including those of so-called viral origin, it is interesting that no clinical cases of chickenpox pericarditis have been previously reported. It must be presumed that the association of these two phenomena is not unexpected; this has been demonstrated pathologically by Hackel.[4]

Usually acute pericarditides have been described as being the result of the primary inflammatory condition. Congenital abnormalities apparently may

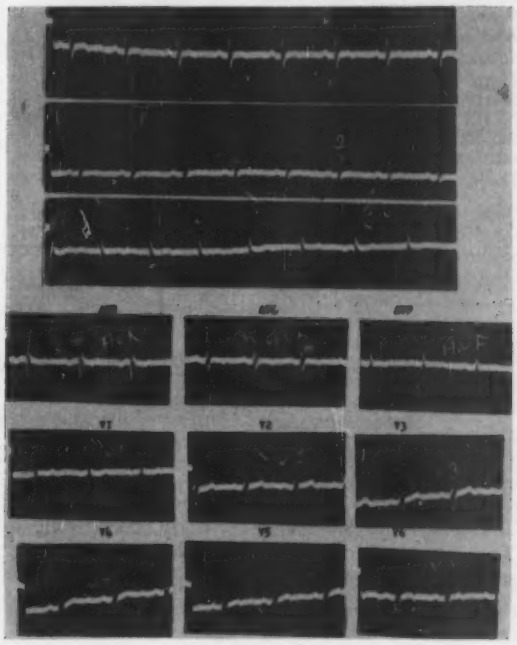

Fig. 3.—Repeat tracing done three days after last occurrence of precordial pain, showing less-pronounced T-wave changes.

occur as a fortuitous circumstance and do not predispose to the appearance of a complicating inflammatory process involving the heart or surrounding structures. It is therefore felt that the arching of the aorta to the right described in this individual probably has no direct or indirect bearing on the occurrence of the acute disease as reported in this case.

Summary

In a case of acute benign pericarditis in association with chickenpox, the chickenpox was of classic course and was complicated only by the appearance of pericarditis of approximately four days' duration, with electrocardiographic changes lasting over a period of at least one week. The resolution was found to be complete on the examination done seven weeks after the onset of the acute illness.

165 N. Village Ave. (Dr. Mandelbaum).

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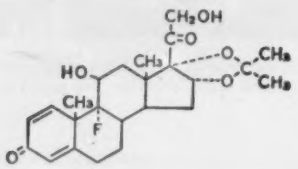
COUNCIL ON DRUGS

NEW AND NONOFFICIAL DRUGS

The following descriptions of drugs are based upon available evidence and do not in any case imply endorsement by the Council.

H. D. KAUTZ, M.D., *Secretary.*

Triamcinolone Acetonide (Kenalog).—9α-Fluoro-16α, 17α-isopropylidenedioxy-Δ¹-hydrocortisone.—The structural formula of triamcinolone acetonide may be represented as follows:



Actions and Uses.—Triamcinolone acetonide, a ketal derivative of triamcinolone, is a highly potent synthetic glucocorticoid which was introduced in 1958 for topical use in the treatment of certain acute or chronic dermatoses. It is effective in much smaller doses than those required with hydrocortisone acetate and shares the same relative freedom from untoward local and systemic effects. The drug is useful for the control of many common dermatoses, allergic and inflammatory, especially those associated with pruritus. Among these are atopic and contact dermatitis, neurodermatitis, seborrheic dermatitis, nummular eczema, eczematous dermatitis, exfoliative dermatitis, anogenital pruritus, and pruritus with lichenification. The drug may also be of value in relieving itching and burning associated with insect bites. Although it has occasionally proved beneficial in the management of eczematized psoriatic lesions (e. g., intertriginous psoriasis), the evidence to date does not suggest any consistent effect in chronic lichenified psoriatic lesions.

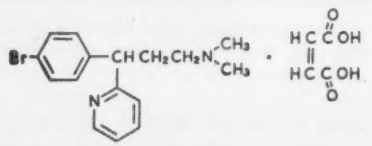
With the usual therapeutic doses systemic steroid effects have not been observed. Local irritation has rarely occurred, and, when it has, it may have been due to the vehicle in which it was incorporated rather than to triamcinolone acetonide per se. As with other steroid compounds, the drug should not be applied to infected areas of skin unless appropriate topical or systemic antibiotics are used concomitantly.

Dosage.—Triamcinolone acetonide, in concentrations of 0.1%, is applied topically to the affected areas two or three times daily.

Preparations: cream 0.1%; lotion 0.1%; ointment 0.1%.

E. R. Squibb & Sons, Division of Olin Mathieson Chemical Corporation, cooperated by furnishing scientific data to aid in the evaluation of triamcinolone acetonide.

Brompheniramine Maleate (Dimetane).—2-[*p*-Bromo-α-(2-dimethylaminoethyl)benzyl]pyridine maleate.—The structural formula of brompheniramine maleate may be represented as follows:



Actions and Uses.—Brompheniramine maleate, introduced commercially in 1958, is a potent antihistaminic agent with actions and uses similar to those of chlorpheniramine maleate, to which it is chemically related, the difference being the substitution of a bromine atom for the chlorine atom of

the latter compound. (See the monograph on chlorpheniramine maleate and the general statement on histamine-antagonizing agents in New and Nonofficial Drugs.) Brompheniramine exhibits a high order of antihistaminic effectiveness and a low incidence of side-effects. Thus, it has a relatively large margin of safety. The drug is also suitable for parenteral administration.

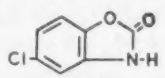
Dosage.—Brompheniramine maleate is administered orally or by subcutaneous, intramuscular, or intravenous injection. For adults, the usual oral dose is 4 mg. three to six times daily. Alternatively, a sustained release tablet containing 12 mg. may be taken every 8 to 12 hours or twice daily. For children over 6 years of age, the oral dose is one-half of that outlined for adults. Doses of 2 mg. given three times a day are usually adequate for children under 6 years of age.

For parenteral administration by the subcutaneous, intramuscular, or intravenous routes, the usual dose of brompheniramine maleate ranges from 5 to 20 mg., with an average of 10 mg. No more than 40 mg. of the drug should be given parenterally in a 24-hour period. When given intravenously, the drug should be injected slowly in a solution no more concentrated than 10 mg. per cubic centimeter. For use in reducing the danger of transfusion reactions, 10 mg. of the drug may be mixed with blood at the time of transfusion, or 10 mg. may be injected intravenously. Sterile solutions of the drug can be mixed with isotonic sodium chloride or 5% dextrose injections, but they should not be allowed to stand in contact with antigenic material used in hyposensitization procedures.

Preparations: elixir 0.4 mg. per cc.; solution (injection) 10 mg. in 1 cc., 200 mg. in 2 cc.; tablets 4 mg.; tablets (sustained release) 12 mg.

A. H. Robins Co., Inc., cooperated by furnishing scientific data to aid in the evaluation of brompheniramine maleate.

Chlorzoxazone (Paraflex).—5-Chloro-2-benzoxazolinone.—5-Chlorobenzoxazolinone.—The structural formula of chlorzoxazone may be represented as follows:



Actions and Uses.—Chlorzoxazone, introduced in 1958, is a skeletal muscle relaxant with actions and uses similar to those of zoxazolamine, of which it is a derivative. Chlorzoxazone produces higher blood levels after oral administration than does zoxazolamine. It does not have the uricosuric activity exhibited by zoxazolamine. The drug is used in the same manner as zoxazolamine for the treatment of painful muscle spasm associated with certain musculoskeletal disorders. These include low back pain, fibrositis, bursitis, myositis, spondylitis, sprains, muscle strains, and torticollis. It may also be employed in conjunction with analgesics (salicylates) and other forms of therapy for the symptomatic treatment of spasm in rheumatoid arthritis and osteoarthritis. Current evidence indicates that chlorzoxazone is of the same order of effectiveness as zoxazolamine for these musculoskeletal disorders. The drug may have some limited value as an adjunct to other therapy in the management of cervical root syndrome and disk disorders. There is little evidence that chlorzoxazone is of any appreciable benefit in spasticity of neurological origin such as in cerebral palsy, dystonia musculorum, amytrophic lateral sclerosis, and multiple sclerosis. Like zoxazolamine, the drug has not been of value in paralysis agitans (Parkinson's disease), various pyramidal tract lesions, basal ganglion disorders, or epilepsy.

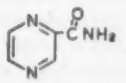
In general, the clinical toxicity of chlorzoxazone is less than that of zoxazolamine, which is the principal distinguishing feature between the two drugs. Side-effects, which are reversible and seldom require the discontinuance of medication, include occasional instances of nausea and vomiting, heartburn, abdominal distress, constipation, and diarrhea. Central nervous system effects may include dizziness, lightheadedness, drowsiness, overstimulation, headache, lethargy, or malaise. Although not frequent, hypersensitivity reactions of the skin may occur; the drug should be discontinued if pruritus or urticaria develops.

Dosage.—Chlorzoxazone is administered orally in doses which must be individualized according to the severity of the symptoms under treatment and the response of the particular patient. For adults, dosage ranges from 250 to 750 mg. three or four times a day. Dosage for children is reduced according to age and body weight.

Preparations: tablets 250 mg.

McNeil Laboratories, Inc., cooperated by furnishing scientific data to aid in the evaluation of chlorzoxazone.

Pyrazinamide (Pyrazinamide).—The structural formula of pyrazinamide may be represented as follows:



Actions and Uses.—Pyrazinamide, introduced in 1955, is a potent, synthetic, antituberculosis agent. Its tuberculostatic activity, as indicated by its ability to eradicate viable tubercle bacilli in mice, is less than that of streptomycin or isoniazid but greater than that of aminosalicylic acid. Pyrazinamide is probably more active also than either cycloserine or viomycin.

Because of its potential toxicity and relatively short period of effectiveness, pyrazinamide is considered one of the secondary drugs for the chemotherapy of tuberculosis. It is best reserved for seriously ill hospitalized patients with tuberculosis

that has ceased to respond to one or more of the major chemotherapeutic agents and combinations, i. e., streptomycin, isoniazid, and aminosalicylic acid. Short-term coverage of surgical procedures to minimize or prevent the spread of infection or occurrence of other tuberculous complications is currently the chief indication for pyrazinamide. Occasionally, the drug can be used in medical emergencies for the treatment of gravely ill patients who are intolerant, by reason of acquired allergies, to other chemotherapeutic agents. Pyrazinamide is not recommended in the initial therapy of newly discovered or previously untreated cases of tuberculosis.

When pyrazinamide is used alone, organismal resistance to its tuberculostatic action develops rapidly (within six to seven weeks), rendering further use of the drug ineffectual. For this reason, there is no indication for the long-term use of pyrazinamide alone in tuberculosis.

Since past experience shows that combined antiinfective therapy is usually superior in the treatment of tuberculosis to therapy with a single drug, the question arises as to the desirability of combining pyrazinamide with other agents. Current opinion seems to be fairly well divided on this issue. When high (and potentially toxic) doses of pyrazinamide are combined with the usual doses of isoniazid, there is some evidence to suggest a synergistic action, which may provide a higher degree and a longer period of chemotherapeutic effectiveness. Such salutary effects are not observed when the dose of pyrazinamide is low. On the contrary, there is a possibility that small amounts of pyrazinamide may even interfere with the chemotherapeutic effectiveness of isoniazid. On the basis of present evidence, the use of pyrazinamide alone, given briefly before and after operation, seems to be justified solely as a means of protecting tuberculous patients against the complications of chest surgery. The ultimate value of pyrazinamide in combination with other drugs must await the results of further investigations.

Hepatic damage, with or without jaundice, has been a serious untoward reaction which has limited the usefulness of pyrazinamide. Although signs of impaired liver function often disappear upon discontinuance of medication, the damage may be progressive and irreversible and may result in death. It is estimated that jaundice occurs in about 3% of patients receiving this drug and that abnormal liver function tests are demonstrated in about 10 to 15% of patients with or without jaundice. Hence, pyrazinamide should be used only when close observation of the patient is possible (preferably in a hospital) and when adequate facilities are available for reliable liver function tests. Sulfobromophthalein retention, serum bilirubin values, thymol turbidity or cephalin flocculation tests, and serum glutamic oxalacetic transaminase determinations, as well as an examination of the urine for bile, should be carried out prior to initiating therapy in order to obtain base-line values. These tests should then be repeated at frequent intervals during therapy. The physician should realize that, while liver function tests are helpful, hepatic damage may occur with explosive suddenness. Hence, close clinical observation, with daily examination for liver enlargement or tenderness and jaundice, is imperative.

Since the drug may cause retention of uric acid in occasional patients, routine blood uric acid determinations may also be indicated; in several instances, an acute attack of gout has occurred during or after the period of pyrazinamide administration.

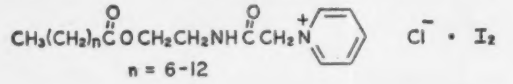
Relatively minor and infrequent side-effects to pyrazinamide include anorexia, gastrointestinal disturbances, joint pains, malaise, nervousness, dysuria, and mild febrile reactions. These effects seldom require discontinuance of therapy.

Dosage.—Pyrazinamide is administered orally. The suggested total daily dose, given in three or four divided doses, is 35 mg. per kilogram of body weight. Although some authorities advocate larger amounts (40 to 50 mg. per kilogram), it is generally agreed that the maximum daily dose, regardless of weight of the patient, should not exceed 3 Gm. When used to cover the surgical management of tuberculosis, therapy with this drug should be started one to two weeks before operation and continued through the operative period and for postoperative periods ranging from two weeks to two months.

Preparations: tablets 500 mg.

Merck Sharp & Dohme, Division of Merck & Co., Inc., cooperated by furnishing scientific data to aid in the evaluation of pyrazinamide.

Undecoylium Chloride-Iodine (Virac).—A complex of iodine with the quaternary compound, acylcolaminoformylmethylpyridium chloride, the acyl group of which is a mixture containing 8 to 14 carbon atoms but principally a 10 to 11 carbon chain. The structural formula of undecoylium chloride-iodine may be represented as follows:



Actions and Uses.—Undecoylium chloride-iodine, a complex of iodine and a cationic quaternary detergent, was introduced commercially in 1957 for topical use as a germicidal agent. Although the detergent itself has some antiseptic properties, the antimicrobial activity of the complex is derived almost wholly from the elemental iodine which is slowly released upon contact with skin and mucous membranes. The wetting action of the detergent does, however, facilitate contact of the iodine with surface areas. Since the iodine complex is water-soluble, it does not precipitate with tissue proteins as do iodine tinctures.

Undecoylium chloride-iodine is used for the prophylaxis and treatment of surface infections due to organisms susceptible to the germicidal action of iodine. However, it cannot be used in place of good surgical judgment in the management of puncture wounds or other wounds containing devitalized tissue. To date, it has been employed for preoperative and postoperative disinfection of the skin, perineum, and genital tract, for the treatment of contaminated wounds and cutaneous bacterial infections, as a douche for the control of vaginal trichomoniasis and moniliasis, and for the treatment of fungus infections of the scalp and feet. It is of the same order of effectiveness as other preparations containing iodine. In contrast to tinctures or solutions of elemental iodine, however, the complex does not cause stinging or irritation to the skin or mucous membranes. In addition, it does not stain skin or clothing. The sensitizing potential of undecoylium chloride-iodine is not known, but, on the basis of experience to date, it appears to be quite low. This possibility should be considered in patients with known sensitivity to iodine.

Dosage.—Undecoylium chloride-iodine is applied topically as needed, generally as an aqueous solution containing 0.2% available iodine. For preoperative disinfection of the skin, more concentrated solutions may be used. Because the complex is detergent, it may be used alone as a shampoo for the treatment of scalp infections.

Preparations: solutions (topical) containing 0.2, 0.6, 0.8, and 3.2% available elemental iodine.

Ruson Laboratories cooperated by furnishing scientific data to aid in the evaluation of undecoylium chloride-iodine.

COUNCIL ON FOODS AND NUTRITION

Report to the Council

***The Council** has authorized publication of the following report.*

PHILIP L. WHITE, SC.D., *Secretary.*

METABOLISM AND CALORIC VALUE OF ALCOHOL

Wilfred W. Westerfeld, Ph.D.
and
Martin P. Schulman, Ph.D., Syracuse, N. Y.

Not only has alcohol been a controversial subject philosophically but also the scientific literature has been full of conflicting conclusions. Our knowledge of the absorption, distribution, and excretion of alcohol is well founded and generally accepted. The pathway of alcohol metabolism has been assumed on the basis of indirect evidence without much argument, but at the present time the exact pathway by which alcohol is metabolized is still uncertain. The utilization of alcohol as a food and the complications of its excessive use are only partially understood. We do not know what the phenomena of intoxication and tolerance can be attributed to, but we do know some of the things to which they cannot be attributed.

In this review of the subject, the extensive literature cannot be cited in detail, but appropriate reviews are given in the bibliography.[1]

From the Department of Biochemistry, State University of New York, College of Medicine at Syracuse.

Metabolism of Alcohol

Alcohol is neither selectively excreted, stored, or converted to a storage form in the body nor does any major portion accumulate as fat, protein, carbohydrate, or other tissue constituent. From studies with alcohol labeled with radioactive carbon (C^{14}), more than 90% of the isotopic carbons appear as carbon dioxide by the time the alcohol has disappeared from the blood. The blood alcohol rises to a maximum during the absorption phase. After distribution and equilibration with the tissues, the blood alcohol concentration decreases linearly with time as it is metabolized. Most substances have an exponential disappearance curve, and alcohol is an unusual metabolite in this respect. A linear disappearance curve results from a saturation of the enzyme, alcohol dehydrogenase, at low concentrations of alcohol, and higher substrate concentrations per se cannot increase the rate of the reaction. At blood alcohol concentrations below 0.01% (10 mg. per 100 ml.), the disappearance curve becomes exponential because the enzyme is no longer saturated with substrate.[2]

Absorption.—As a small, neutral, water-soluble molecule requiring no digestion, ethyl alcohol can be absorbed by simple diffusion throughout the entire gastrointestinal tract, including the stomach and rectum. Orally ingested alcohol is usually passed rapidly down the gastrointestinal tract from the stomach, and approximately 80% of it is absorbed from the small intestine as rapidly as it leaves the stomach. It passes into the blood at a rate proportional to its concentration, and since there is no upper limit to its rate of absorption, alcohol does not remain or accumulate in the intestine. Absorption can be slowed by delaying the emptying time of the stomach, as by consuming food, or by ingesting dilute instead of moderately concentrated (30%) alcohol solutions; for example, beer instead of cocktails.

Alcohol also is absorbed very rapidly from the peritoneal cavity, and it can slowly be administered intravenously as a 20 to 25% solution. It can be an industrial hazard since it is absorbed through the lungs, and intoxicating blood levels can be achieved through the prolonged inhalation of low concentrations of alcohol vapors. Alcohol is not absorbed significantly through the skin.

Distribution.—The distribution of alcohol throughout the body is in proportion to the water content of the various tissues. At equilibrium, most organs contain from 70 to 80% of the plasma concentration and the body as a whole, approximately 60%. The plasma contains more alcohol per unit volume than does whole blood because the former has a higher water content. Bone contains a small amount of water and takes up little alcohol. Fat tissue has a relatively poor blood supply and low water content and has only 10 to 20% of the alcohol concentration in blood. Obese individuals, therefore, have a higher blood alcohol concentration than normal individuals when both have the same intake per kilogram of body weight. The alcohol concentration in tissues, including the brain, parallels the blood level as the latter rises and falls. At the cephalic end, alcohol enters the cerebrospinal fluid in proportion to its higher water content. It diffuses into the lumbar region rather slowly, and a comparison of the alcohol concentrations in blood and lumbar spinal fluid shows a considerable diffusion time lag in the latter.

Small amounts of alcohol (2 to 4% of the total dose) are lost into the urine and into the respiratory air by diffusion. The alcohol in these excretions is in equilibrium with the blood alcohol passing through the kidneys and lungs; hence, a determination of the alcohol concentration in respiratory air or urine can be used to estimate blood concentrations for medicolegal purposes. No significant amount of alcohol is excreted as a glycuronide or sulfate conjugate, and there is no active excretion of alcohol itself by the kidney. The total amount of alcohol lost in the urine is in proportion to the average blood concentration during urine formation and the volume of urine excreted.

Approximately 2 liters of respiratory air contain as much alcohol as does 1 ml. of blood. The total amount of alcohol lost through the lungs can be increased somewhat by hyperventilation. Large doses of dinitrophenol have been used in experimental animals to induce a hyperventilation severe enough to increase the rate of elimination of alcohol from the body; however, this has no practical value in human intoxication. Fluctuations in the small amounts of alcohol excreted are relatively unimportant, and the only way that the bulk of the alcohol can be removed is by metabolic degradation.

Because of the many variables involved, it is dangerous to try to estimate the total amount of alcohol consumed from any given blood level. However, as a quick approximation, 1 ml. (800 mg.) of alcohol per kilogram of body weight taken over a period of one hour will give a maximum blood alcohol concentration in the neighborhood of 100 mg. per 100 ml. (0.1%) in 2 hours; this is equivalent to four or five ounces of whisky for a man weighing 70 kg. (154 lb.).[3] In New York state, a blood level of 0.15% alcohol is established by law as prima-facie evidence of intoxication. Some six to eight ounces of whisky is required by an average individual to reach this level, and one ounce per hour thereafter will sustain it at that level.

Rate.—Much of the controversial literature in the alcohol field has been concerned with problems related to variations in the rate of alcohol metabolism. Most of these divergent conclusions can be reconciled by recognizing that sluggish rates of alcohol metabolism can be increased to a so-called maximum in several ways, but that none of the procedures tested will cause this "maximum" to be exceeded. Positive effects can, therefore, be obtained when the initial rate of alcohol metabolism is sluggish, but no effect will be observed when the initial rate is already at the "maximum."

The rates of alcohol metabolism differ in various species, in animals of one species, and in the same animal at different times. The rate of alcohol metabolism in different humans has been estimated to vary between 100 and 200 mg. per kilogram of body weight per hour; the value of 200 mg. per kilogram per hour is equivalent to 840 ml. or about one-fifth of a gallon of 100 proof whisky (50% alcohol) per day for a man weighing 70 kg. The maximum upper limit is close to one quart per day (240 mg. per kilogram per hour).[4] A common estimate is that the human can metabolize about one ounce of whisky per hour (720 ml. per day). The blood alcohol concentration can decrease at a rate between 10 and 25 mg. per 100 ml. per hour, but the usual rate is between 15 and 20 mg. per 100 ml., and the upper limit appears to be 20 to 25 mg. per 100 ml. per hour. A single dose

of 3 Gm. per kilogram (one pint of whisky for a man weighing 70 kg.) could be fatal, whereas the same amount taken over a period of time could be metabolized without difficulty.

The rate of alcohol metabolism has been reported to be constant and independent of dosage in a variety of species, but equally competent investigators have found a higher rate of metabolism when the blood alcohol levels are high. When an effect of dosage is observed, it is relatively small (e. g., 30% increase in rate when the blood alcohol concentration is 100 mg. per 100 ml. higher).[5] Since this difference is exceeded by the individual variability encountered at the same blood level, many conflicting conclusions have resulted. It seems reasonably clear that high blood levels tend to be accompanied by higher rates of alcohol metabolism (up to the maximum of 20 to 25 mg. per 100 ml. per hour decrease in blood alcohol). However, this maximum rate is achieved in some individuals at low blood alcohol concentrations, and no effect of increased dosage can then be observed. Estimates of the maximum rate of utilization are questionable when based on rates obtained at low blood levels.

From a theoretical point of view, a higher rate of metabolism at a higher blood level is incompatible with a linear disappearance curve and would be expected to give an exponential curve. If the curve is linear and is also affected by concentration, then the higher blood alcohol level must trigger off a high rate of metabolism that is sustained at this high rate throughout its disappearance. This phenomenon cannot be due to a direct effect of the higher substrate concentration on the alcohol dehydrogenase reaction but has been attributed to a secondary (perhaps hormonal) influence of high blood alcohol levels in speeding up the concomitant carbohydrate metabolism.[1a] This results in an increased amount of pyruvate that can enter into a coupled oxidation-reduction reaction with the alcohol.[6] In this coupled reaction, the pyruvate is reduced to lactate, and the alcohol is oxidized to acetaldehyde at a faster rate than would otherwise take place.

Factors Influencing Rate.—The effect of food in decreasing the intoxicating effects of alcohol is a common observation. Proteins effectively increase the rate of alcohol metabolism. This also has been observed with two individual amino acids, glycine and alanine. Fat or carbohydrate administration is without significant effect, although a previous high carbohydrate diet predisposes a high rate, and a previous high-fat diet predisposes a low rate of alcohol metabolism. In fasting, the rate remains high during the first few days while the carbohydrate reserves are consumed. The rate falls appreciably while the fat reserves are being utilized but increases again as the proteins are used. Feeding a low-protein diet reduces the rate by depleting the liver enzymes responsible for alcohol metabolism.[7]

The rate of alcohol metabolism is quite insensitive to the over-all metabolic needs of the organisms. Hyperthyroidism has no effect on alcohol metabolism. Exposure to external cold or muscular exercise sufficient to double the metabolic rate also has no effect on the rate of alcohol metabolism. Reducing the body temperature slows all metabolic reactions, and in cold-blooded animals the rate of alcohol metabolism follows the usual relationship for chemical reactions by being doubled for each rise in temperature of 10 degrees.

Three related substances, insulin, pyruvate, and fructose, have been reported by a variety of investigators to increase the rate of alcohol metabolism in animals and humans. This has been a highly controversial area, since about an equal number of investigators have obtained negative results. Most of the discrepancies can be reconciled with the following interpretation. 1. Glucose or insulin alone may increase the rate of alcohol metabolism in the dog or human, but the two together are more certain to increase the rate. 2. None of these agents appears to have any effect when the existing rate of alcohol metabolism is already high (a decrease in blood alcohol of 20 to 25 mg. per 100 ml. per hour), but all three will stimulate an initially sluggish rate (10 mg. per 100 ml. per hour) and increase it to the rate of 20 to 25 mg. per 100 ml. per hour. This relationship was described for the insulin effect by Widmark[8] over 20 years ago, and a similar relationship has been observed for the pyruvate effect.[1a] The rate of 20 to 25 mg. per 100 ml. per hour decrease in blood alcohol appears to be the maximum that can be achieved in these species, even with a brisk concomitant carbohydrate metabolism; lower rates of alcohol metabolism can be increased by stimulating carbohydrate breakdown.

The effect of insulin, insulin plus glucose, or fructose alone, can be attributed to an increase in carbohydrate metabolites such as pyruvate. Insulin is not required for fructose metabolism, and the administration of fructose alone increases blood pyruvate more than glucose does; this increase is suppressed when alcohol is also being metabolized. Glucose will increase blood pyruvate in the normal person but not in the diabetic unless insulin is also administered. Insulin undoubtedly increases the breakdown of glucose to pyruvate, and the effect of all of these agents on alcohol metabolism appears to have pyruvate or other carbohydrate intermediates as the common denominator. The increased rate of alcohol metabolism, resulting from the coupled oxidation-reduction reaction between pyruvate and alcohol, is accompanied by a mild metabolic acidosis in the human from the accumulated lactic acid.[9]

Alcohol and Carbohydrate Metabolism

The effect of alcohol on the blood sugar level appears to be the resultant of two opposing effects: (1) a stimulation of carbohydrate metabolism, which tends to decrease the blood sugar, and (2) a glycogenolysis, which tends to increase blood sugar at the expense of liver glycogen. In the normal person, the resultant is only a minor fluctuation in blood sugar; however, in the diabetic or others with depleted liver glycogen, alcohol administration decreases the blood sugar. Alcohol suppresses epinephrine or alimentary hyperglycemia and decreases the amount of liver glycogen formed from glucose. Alcohol itself is not converted to liver glycogen. Conversely, a high level of blood sugar does not have much effect on the rate of alcohol metabolism but will protect animals from the lethal effects of alcohol. A lethal blood alcohol concentration of 0.8% at a blood sugar level of 70 mg. per 100 ml. becomes 1.2% at a level of 200 mg. per 100 ml. of blood sugar.[10]

Diabetes.—In view of the previously noted relationship between alcohol and carbohydrate metabolism, the rate of alcohol metabolism in the untreated diabetic would be expected to be slowed. This has been demonstrated adequately in depancreatized animals. It is probably also true in human diabetics, but the variability encountered in the severity of the disease, the differences in insulin treatment, or insulin withdrawal before testing have led to inconsistent results.

The effect of alcohol in the diet of the diabetic has not been studied adequately. It seems clear that alcohol neither has a major antiketogenic effect in fasting or in diabetes nor is any major portion of the alcohol excreted as extra ketone bodies. The long-range effects of alcohol ingestion by the diabetic, particularly the stimulation of the adrenal cortex and the tendency toward fatty livers, are unknown.

Habituation and Tolerance

A tolerance to alcohol develops after its continued use, but it is lost after a number of months of abstinence. During the tolerance phase, larger doses of alcohol are required to produce the same pharmacological effect. Habituation to alcohol has no effect on the entry of alcohol into the central nervous system, the concentration of liver alcohol dehydrogenase, or the excretion of alcohol. The absorption of alcohol from the gastrointestinal tract is either unchanged or slightly more rapid after habituation, but it is clearly not delayed. Occasional data have been reported which indicate a higher rate of alcohol metabolism after habituation, but this is not found to be consistent in either animals or humans. It is generally agreed that habituation has no significant effect on the rate of alcohol metabolism. In the human alcoholic, tolerance to alcohol is first increased, but after long-continued use it returns to normal or subnormal levels. No correlation has yet been made between this change in tolerance and the extent of liver damage or between the rate of alcohol metabolism in the chronic alcoholic and the extent of liver damage.

It is quite clear that the phenomenon of tolerance cannot be attributed to a faster removal of alcohol from the system. At the same level of blood alcohol, the intoxicating effects are greater when the blood level is rising than when it is falling, and the electroencephalographic changes are also greater at any given blood level when it is rising.[11] Habituated animals and humans sober up faster, even though the level of blood alcohol falls at a normal rate. The phenomenon of tolerance is an adaptation of the central nervous system to alcohol rather than an alteration in the metabolism of alcohol. It is, therefore, theoretically possible to alleviate the intoxication symptoms without altering the metabolism of the alcohol. Such beneficial results have been reported from the use of insulin or the breathing of pure oxygen or a mixture of 90% oxygen and 10% carbon dioxide. The electroencephalographic changes that result from the consumption of alcohol are similar to those observed in anoxia, which enhances the intoxicating effects of alcohol. The caffeine in a cup of coffee may or may not alleviate the intoxication symptoms, but it has no effect on alcohol metabolism.[12]

Most unicellular organisms can tolerate an alcohol concentration of 2%, whereas yeasts can ferment sugar to an alcohol concentration of approximately 14%. The lethal blood level for many animals is in the range of 0.8 to 1.0%, but acute alcoholic deaths in humans sometimes occur at blood levels of 0.4 to 0.6%. Although the human is probably more sensitive to alcohol, these comparative figures cannot be accepted at face value because most acute alcoholic deaths in humans occur in physically debilitated individuals and often from causes other than the alcohol per se. Acute alcoholic death results from respiratory failure; however, if artificial respiration is used to maintain the animal, the blood alcohol level can be increased to 1.2 to 1.3% before cardiac failure ensues. Presumably artificial respiration would have a similar protective effect in the severely intoxicated human. The addition of glutamine to the growth medium of the bacterium Streptococcus faecalis inhibits the toxic effects of alcohol. How glutamine exerts this effect and whether a similar response could be obtained in mammals are still unknown.

Site and Pathway of Metabolism

Both the liver and kidney are rich sources of alcohol dehydrogenase, and both organs are capable of oxidizing alcohol to carbon dioxide at a brisk rate. In the intact animal, the liver is the major organ involved in both alcohol and acetaldehyde

metabolism, whereas the kidney plays a minor role.[13] Hepatectomy or liver damage decreases the rate of alcohol metabolism significantly, but kidney damage has no effect. The rate of disappearance of alcohol from the blood can be correlated with the amount of active liver tissue present in the animal.

An eviscerated preparation metabolizes alcohol at less than 10% of the normal rate. Hence, the heart, lung, brain, muscles, and skin contribute very little to the metabolism of alcohol in the intact animal. On the basis of perfusion studies and the conversion of isotopic alcohol to carbon dioxide, the heart and lung can utilize alcohol slightly. Pigeon breast muscle utilizes alcohol, but mammalian skeletal muscle cannot metabolize alcohol. The brain has no significant alcohol-oxidizing ability. Isotopic alcohol is not converted to carbon dioxide by brain tissue in vitro, and there is no indication from in vivo studies that isotopic alcohol is metabolized by brain tissue.[14] Ordinary intoxicating levels of blood alcohol do not have any effect on the oxygen consumption or glucose utilization by the brain.

A variety of studies have indicated that alcohol is oxidized to acetaldehyde as the first step in its metabolism. Only those tissues containing alcohol dehydrogenase metabolize alcohol at a significant rate. Although catalase can oxidize alcohol in vitro under certain conditions, it is not responsible for alcohol oxidation in vivo. Blood acetaldehyde increases after alcohol administration in most species, including the human, but not appreciably in the dog. The increase in blood acetaldehyde is exaggerated by pretreatment with disulfiram (Antabuse). Alcohol dehydrogenase is a zinc enzyme that requires diphosphopyridine nucleotide as a cofactor and the cytochrome chain for complete reaction with oxygen. On the basis of the alcohol-acetaldehyde equilibrium constant, only a very small portion of the alcohol can be oxidized to acetaldehyde in vitro before the reaction stops. The reaction continues in vivo because the acetaldehyde is removed by further metabolism. The oxidation of alcohol to acetaldehyde is the slowest reaction in the chain of metabolic reactions and is, therefore, the one which must be accelerated in order to increase the rate of alcohol metabolism.

The fate of the acetaldehyde is still uncertain. Liver contains several enzymes that are capable of oxidizing acetaldehyde to acetic acid, but some of them are not involved in acetaldehyde metabolism.[15] Acetic acid cannot be detected in the intact animal's metabolism of alcohol. In vivo studies with isotopic alcohol have indicated that free acetic acid is probably not an intermediate. Acetyl coenzyme A (CoA) is probably formed from alcohol, since labeled alcohol gives rise to a labeled acetyl group in acetylated sulfanilamide. The major acetylating agent is presumably acetyl CoA. Acetaldehyde appears to be converted to acetyl CoA without first being oxidized to free acetic acid. The acetyl group of acetyl CoA could then be expected to be completely oxidized to carbon dioxide and water in the citric acid cycle. High concentrations of citrate have been found in rat kidney after alcohol administration.

Nutritional Value of Alcohol

Alcohol is a high-calorie food and yields about 7 calories per gram, as compared with 9 calories per gram for fat and 4 calories per gram for carbohydrate or protein. One ounce (30 ml.) of 100 proof whisky contains 15 ml. or 12 Gm. of alcohol, which contributes 84 calories. Three ounces of whisky is equivalent to one ounce of fat or oil from a caloric standpoint, and, because of its water solubility, alcohol has some possible utility in parenteral nutrition. It can furnish a large proportion of the daily caloric needs. Chronic alcoholics consuming a fifth of whisky per day obtain 2,240 calories from the alcohol; this represents over 75% of the average daily total intake of 2,500 to 3,000 calories. All of the distilled beverages supply calories but represent a diet grossly deficient in vitamins, minerals, and proteins. Beer and wine contain some protein, as well as a few minerals and vitamins, but their main nutritional contribution is calories. Twelve ounces of 4% beer or 4 ounces of wine containing 12% alcohol supply 81 calories.[16]

When the calories derived from alcohol are a small percentage of the total, the alcohol appears to contribute to the economy of the organism in about the same way as fat or carbohydrate; it spares protein degradation for energy and supports growth. However, when the calories derived from alcohol represent a major portion of the total intake, the alcohol is not as good a source of calories as either carbohydrate or fat; it then fails to support growth or weight restoration as well as an isocaloric quantity of fat or carbohydrate. It is possible that the calories in alcohol are not utilized in the body as well as the calories in carbohydrate or fat at all dosages but that the differences at low dosages are too small to detect. It is also possible that large doses of alcohol are wasteful because they dissipate body heat through a dilatation of the skin vessels. At the present time it is not clear whether alcohol can be utilized for muscle work. The alcohol itself cannot be oxidized by muscle, but intermediate metabolites might be utilized.

Alcohol neither changes the basal metabolic rate nor exerts any specific dynamic action. The theoretical respiratory quotient (CO_2/O_2) for the combustion of alcohol is 0.667. When an animal has a high respiratory quotient from the burning of carbohydrate, the administration of alcohol lowers it. This decrease in the respiratory quotient is accompanied by a slight increase in total oxygen consumption in order to maintain the same caloric

turnover (120 calories per mole of oxygen for the combustion of glucose and 107 calories per mole of oxygen for alcohol.)[17]

Nutritional Complications

The high-alcohol diet consumed by many chronic alcoholics is nutritionally inadequate in many respects. Three deficiency syndromes are particularly common in alcoholics: (1) polyneuropathy resulting from thiamine deficiency, (2) pellagra resulting from niacin deficiency, and (3) fatty liver (and eventually cirrhosis) resulting from a low-protein, low-lipotropic intake. Wernicke's syndrome and Korsakoff's psychosis are often associated together in alcoholics and are thought to result from chronic nutritional deficiencies. Treatment with thiamine corrects some of the symptoms of the former but not the latter. Alcoholic polyneuropathy and pellagra were once thought to be due to a direct toxic effect of the alcohol but are now recognized as vitamin deficiencies resulting simply from an inadequate intake. These deficiencies can be corrected by the administration of appropriate vitamins, in spite of a continued high intake of alcohol. The amount of thiamine required in a diet is increased by a high-carbohydrate intake and decreased by a high-fat intake. Alcohol acts like fat in sparing thiamine; therefore, the thiamine deficiency in alcoholics cannot be attributed to an increased requirement.[18]

It should be emphasized that animals, including the human, eat in relation to their appetite, and the appetite is normally geared to their caloric needs. When his appetite has been satisfied, the animal stops eating, even though the intake of vitamins, minerals, and proteins is still inadequate. The dietary essentials must be present in the amount of food required to fulfill the caloric needs, or such essentials will not be obtained. Alcohol is not simply added to the diet that would otherwise be consumed in its absence, but instead it is substituted for some of the food. The more calories consumed as alcohol, the less food will be eaten. This substitution, resulting in decreased food consumption, is sometimes ignored experimentally when the alcohol is added to the drinking water or given separately from the food. An adequate diet can become inadequate in essential nutrients by adding alcohol to the total diet rather than substituting it for some of the carbohydrate or fat.

Fatty liver and cirrhosis are the characteristic features of chronic consumption of alcohol by animals or humans. With or without alcohol these changes are characteristic of a low-protein, choline-deficient diet and can be prevented or, in the case of fatty liver, be reversed by administration of choline or methionine or by a high-protein diet. It has not been established that small doses of alcohol have a greater effect in producing fatty livers than an isocaloric quantity of pure carbohydrate, but in many experiments the presence of alcohol appears to produce an earlier and more intense fatty change in the liver. It precipitates a more severe choline deficiency, as manifested by hemorrhagic degeneration in the kidney of the young rat.[19]

Large doses of alcohol exert a more specific effect in producing fatty livers than simply supplying calories, and this effect is mediated, at least in part, through the pituitary and the adrenal cortex. The rapid accumulation of liver lipids (11 to 15 hours) after alcohol has been consumed does not take place in an adrenalectomized or hypophysectomized animal, but the effect is restored by cortisone.[20] The fat deposition in the liver is prevented by fasting. No major portion of the alcohol itself accumulates as fat.

There is considerable evidence that relatively large doses of alcohol stimulate the adrenal cortex. Alcohol decreases adrenal cholesterol and ascorbic acid and causes involution of the thymus. As determined by the thymus maintenance dose, the adrenal cortical activity is increased markedly by alcohol. The adrenal hypertrophies with a continuing intake of alcohol, and the plasma 17-hydroxycorticosteroids are increased by a disulfiram-alcohol reaction.

Alcohol causes a release of vitamin A from the liver in various species, with a resulting increase in plasma concentration and a depletion of liver stores. Apparently no deficiency of vitamin A results from this effect, but rats on a deficient diet gain less weight when alcohol is added to minimal doses of vitamin A.

Summary

Alcohol is a high-calorie food and drug; it requires no digestion and imposes no absorption problems. It is distributed throughout the body water, and there are no effective ways of removing it except by metabolic degradation in the liver. The latter process is relatively slow and constant and leads to a complete burning of essentially all the alcohol ingested. Its rate of removal is dependent to some extent on the concomitant carbohydrate metabolism, but it is relatively independent of other factors. Tolerance to alcohol is an adaptation of the central nervous system rather than an altered rate of metabolism of the alcohol. As a food, it is a highly purified diet that supplies only calories; it thereby precipitates several vitamin deficiencies, as well as a fatty liver, and eventually cirrhosis. In large amounts alcohol is not as good a food source of calories as pure carbohydrates or fat.

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NERVOUS CONTROL OF HOLLOW VISCERA.—The concept that the sympathetic and parasympathetic components of the autonomic nervous system act antagonistically to control the activity of the automatic tissues has established applicability in a very few situations—one being the control of the heart rate, for example. The idea that this balance between sympathetic and parasympathetic influences is of wide importance is derived in part from the anatomic fact of the dual innervation of some organs and in part by reasoning from the effects of injecting substances known to be chemical mediators.

There are, however, objections to any formulation which depends upon dual, antagonistic extrinsic nervous influences to explain the regulation of most of the intrinsically rhythmic tissues. . . . The results of nerve-section experiments are inconsistent with the concept that the control of bladder and intestinal activity is through antagonistic effects of the sympathetic and parasympathetic nervous systems. The urinary bladder is not paralyzed but is rendered hyperactive by parasympathetic ("motor") denervation. Intestinal activity is augmented by sympathetic denervation, but this effect cannot be due to unopposed vagal influences, since vagal section does not alter the hyperactivity.

A more consistent explanation is derived by considering that sensory denervation removes the sympathetic inhibitory tone initiated by distention of the organ, that is, that activity is limited by the same stimulus that initiates it.—F. H. Meyers, M.D., A Critique of the Concept of Sympathetic-Parasympathetic Antagonism, *Journal of The American Geriatrics Society*, February, 1959.

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION

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Subscription price . Fifteen dollars per annum in advance
Cable Address . . . . . "Medic, Chicago"

A CENTURY OF DENTAL PROGRESS

THE approaching 100th anniversary of the founding of the American Dental Association signifies a century of achievement and progress in the fields of dental education, dental science, and professional responsibility. The 90,000 members of the American Dental Association are professional descendants of the small group of 26 dentists who convened at Niagara Falls on August 3, 1859, to establish the first permanent dental organization in the United States. In the hundred years that have followed, American dentistry has achieved a maturity that has given it world leadership.

It was in the United States that dentistry was first recognized as a separate, independent profession with its own formal program of dental education. However, at the turn of the century many dental schools were still unadorned commercial enterprises, which gradual reforms, instituted by organized dentistry, forced out of existence. The accrediting agency of the dental profession has been the American Dental Association's Council on Dental Education. Through a well-conceived program of inspection and accreditation this body has exercised a pronounced impact on dentistry and dental education throughout the world. There are now 42 dental schools in the United States, all associated with universities. Postgraduate training has been encouraged by the Council on Dental Education. Last year some 22,000 graduate dentists enrolled in continuation courses, special clinics, and hospital teaching programs. Dental services can now be obtained in about one-third of the nation's hospitals.

A significant influence on the progress of dentistry in the 20th century has been dental research. With enhanced knowledge from scientific research have come advances in restorative dentistry, the discovery of new filling materials, new methods for the treatment of dental cavities, the introduction of procaine for the elimination of pain, new techniques and materials for the treatment of patients requiring dentures, and emphasis on the conservation of the diseased tooth. Finally came the realization that the only genuine solution to the problem of dental disease lay in prevention. Among more recent attitudes is the attention directed to the relation between the rate of dental decay and the concentrated sugars consumed, the measurement of decay activity as determined by bacterial counts in the saliva, and the effect of a trace of fluorine in drinking water on the rate of dental decay.

Dental scientists are now using radioactive tracers, the electron microscope, and polarized light and transillumination in an effort to unlock the mystery of dental decay. Comprehensive investigations on dental problems are being conducted in schools and research centers throughout the United States.

In addition, the American Dental Association has been a factor in advancing dental health on a world-wide scale by its active support of the Fédération Dentaire Internationale and through it the World Health Organization.

Thus it is apparent that the American Dental Association has a long distinguished record of public service and it can face the future with reasonable expectancy of significant improvements in the nation's dental health. THE JOURNAL of the American Medical Association extends centennial birthday greetings and best wishes for a second century of dedication to the welfare of the American people.

NATIONAL HOSPITAL WEEK

The observance of National Hospital Week, May 10-16, provides an opportunity for the medical profession to aid the nation's hospitals in developing better understanding of their services to the American people. Emphasizing the theme "More Roads to Recovery," the program this year will endeavor to explain how improvements in hospital care are making recent advances in medical science meaningful to every patient. This is an especially appropriate time for tours of hospital facilities, talks to community groups, radio and television programs, and newspaper announcements. National Hospital Week offers a splendid opportunity for cooperation between physicians and hospitals in creating greater appreciation of the entire medical team.

ORGANIZATION SECTION

SCHOOL HEALTH SESSION TO PRECEDE ATLANTIC CITY MEETING

School health will be the subject of a meeting to be held at the Claridge Hotel, Atlantic City, at 7:30 p. m. on June 7. Interested physicians will find it convenient to combine attendance at the school health session with the A. M. A. meeting which officially opens the next day. The program, to feature "The Changing Role of the School Physician," "The Future of School Nursing," and "Trends in School Health Education," is open to school personnel as well as to the medical profession. The American School Health Association is sponsoring the meeting in cooperation with the A. M. A. Department of Health Education.

NEW LEAFLET ON A. M. A. SERVICES

It's your A. M. A., and it's here to serve you!

This is the message of a new leaflet entitled "Science and Service to Humanity" being distributed by the American Medical Association to physicians with their 1959 membership cards.

The leaflet explains the meaning and value of A. M. A. membership and points out that by virtue of his membership each physician becomes an investor in humanity.

Although the leaflet does not attempt to cover all services, it stresses that each member has at his finger tips the vast scientific, socioeconomic, public service, and informational resources of the Association. The leaflet stresses that many A. M. A. members fail to take advantage of membership benefits. It urges doctors to use their membership privileges for their own benefit and for that of their patients.

SPECIAL SESSION ON AGING

The Committee on Aging of the Council on Medical Service will present a special session on New Concepts in Aging during the annual convention of the American Medical Association in Atlantic City, June 8-12. This one-day session, to which all physicians are invited, will be held in Room C of the Convention Hall at 9 a. m. Wednesday, June 10. The meeting is being designed to present the practicing physician with a concentrated review of current thinking regarding health care of the aged and to provide him with concrete health recommendations which he can translate to his own older patients.

Keynoting the session will be a series of panels devoted to diseases among the aged, nutritional counseling, promoting physical fitness, and motivating the older person. Panel members will include such authorities as Drs. Leland S. McKittrick, Brookline, Mass.; Edward C. Reifenstein, New York; Irving S. Wright, New York; Walter E. Vest Jr., Denver; Frederick J. Stare, Boston; Norman Lee Barr, Bethesda, Md.; Ewald W. Busse, Durham, N. C.; and Howard P. Rome, Rochester, Minn.

These and 10 other experts in their fields will cover such points as (1) special treatment aspects of cardiovascular, neoplastic, and bone diseases among older persons, (2) effects of adequate nutrition on rehabilitation potential for older patients, (3) variables in prescribing a physical activity program for the older person, and (4) the effects of physical health, social adjustment, and psychological functioning on motivation in the older person.

Each panel presentation will be followed by a discussion period in which the primary interests of the audience will be explored and important ideas summarized. Dr. Edward L. Bortz of Philadelphia will close the session by summarizing the health recommendations brought out during the day in a "formula for full living" by the aging person.

Physicians planning to attend the session are invited to send questions or points they would like to see discussed to the Committee on Aging, A. M. A., 535 N. Dearborn St., Chicago 10. The areas of interest so indicated will be brought out as far as possible during the session. Queries should be received at A. M. A. headquarters not later than Wednesday, May 27.

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

The following study by the Council has been carried out during the past 30 months, as conceived and followed through by Glen R. Shepherd, M.D., Assistant Secretary of the Council. It was made possible only through the active cooperation and time of many institutions and organizations in supplying the information requested, and deep appreciation is expressed to them. It is presented in the expectation that the new information provided by the study will be of assistance in the future planning by the various groups involved to meet better the needs of physicians in continuing their education.

WALTER S. WIGGINS, M.D., *Secretary.*

A GEOGRAPHICALLY ORIENTED STUDY OF POSTGRADUATE COURSES AND ENROLLMENTS IN THE UNITED STATES FOR PHYSICIANS DURING THE YEAR 1956-1957

Introduction

For many years, the Council on Medical Education and Hospitals, in connection with its listing of postgraduate courses, has collected information on numbers of enrollments in the courses. With evidence of advancing interest in the continuation education of physicians as well as the apparent need for a more informed and concerted effort in this field, the Council intensified its studies in regard to the postgraduate courses that were to be offered in the year Sept. 1, 1956, to Aug. 31, 1957. Three new kinds of information secured that year from the sponsoring institutions and agencies pertained to (1) the characteristics of the courses, (2) courses that were cancelled rather than being actually offered, and (3) the geographical source of the physicians enrolling in the courses. An analysis of the characteristics of the courses was prepared and published in the annual report of the Council,[1] in 1957. The other information collected has been the subject of analysis and study during the intervening period, and it is the subject of this report.

It was initially expected, in planning this project, that physicians confined any travel they did for purposes of continuing their education to centers nearby, and that a geographically oriented study would reveal the regions involved. This would make it possible for all institutions and organizations in each region that wished to engage in some cooperative planning to do so with the knowledge that they were drawing their enrollments from the same places; i. e., that they were likely to be planning for the same physicians. However, study of the extensive data has revealed much other information than was originally anticipated. It is presented here with the expectation that it will be useful in future planning in this important phase of medical education.

This article provides new information about the marked mobility of physicians enrolling in postgraduate courses, outlines a "threshold factor" in education, presents the distribution of subjects of courses, and points out the important role that medical centers have in attracting physician enrollments. The data and conclusions are based on a large representative sampling of 695 courses in which there were 20,432 enrollments. The study by the Council on Medical Education and Hospitals should be of interest and use to all those concerned with the planning of postgraduate courses for physicians, emphasizing as its data does the importance of regional and national conceptions in this field rather than confining the planning within each state, as has often occurred in the past, without regard to the educational opportunities elsewhere in the region and nation.

Another project that is currently in progress is concerned with qualitative factors of postgraduate courses, with the expectation that if a suitable and reliable means of securing such information is developed, it will be possible to inform the profession only about those courses which merit their time and energy.

Perhaps the most basic premise on which the Council's activities in the field of postgraduate medical education are based is that high quality courses stimulate the participation of more physicians in further continuation education. It follows that the provision of a suitable number of effective

courses is a sine qua non to other approaches designed to insure that physicians remain abreast of advances in medicine.

Presentation of Data

Methods of Study

The current study, as well as that presented two years ago, is based on information collected for and in relation to the postgraduate courses listed in THE JOURNAL.[2] The description of the educational activities listed in 1956-1957 was as follows: "Postgraduate medical education courses consist of planned activities for doctors of medicine intended to refresh physicians in various aspects of their basic medical education, to provide information on new developments in medicine, to acquire new skills, and to stimulate further educational efforts by the participants. Postgraduate courses for practicing physicians, for purposes of the listing, do not include clinical-pathological conferences, staff meetings, the conferences of an approved residency program, or the usual medical society meetings which are listed elsewhere in THE JOURNAL. Neither do they include courses accredited for specialty board certification or for credit toward advanced degrees."[3] The activities mentioned in the last sentence involve graduate medical education predominantly, not postgraduate, in the present frame of reference and terminology used by the Council.

The list of 1,280 courses was published in July, 1956.[2] Beginning with September, 1956, and continuing monthly, requests for enrollment information were sent to the sponsoring institutions and organizations about courses scheduled in that month. Follow-up requests were sent when information was not received. The median number of follow-up requests attempting to elicit the information was four, with a range from one to nine. The information requested in addition to the total number of course enrollments by M.D.'s in general or part-time specialty practice, in full-time specialty practice, and in residency training was the geographical source of each enrollment of an M.D. in practice, i. e., the city and state in which his practice office was located. Every attempt was made to secure as complete information as possible.

The thousands of items of information collected had to be dealt with by IBM punch-card methods. This was done by utilizing the grid numbers across the top of each map in a standard atlas as well as the letters down the side. The coordinates for each city in each state from which enrollments were reported were punched in the cards together with the number of enrollments and the city of the course involved. Since there were individual code numbers for each course, it was possible also to correlate the enrollment data in the geographical study with other characteristics of the courses.

Considering that this aspect of the study involved the geographical location of the courses as well as of the enrollments, the site of the courses was by city rather than by institution. This meant that for the 152 institutions and organizations sponsoring reported courses, only 73 cities were involved. This also required the designation of the "postgraduate center" (each of the 73 cities) as including certain satellite cities and suburbs in order to avoid an unwieldly and relatively unmeaningful large number of corporately separate though geographically related cities and towns. Thus, Seattle and Tacoma were considered as one center, as was San Francisco, Oakland, and nearby communities. The grouping will be presented in regard to the data obtained.

Because of the itinerant nature of circuit courses, they were excluded from the study. Home-study courses also were excluded. A total of 226 courses were cancelled for lack of sufficient physician enrollment.

After the machines had sorted and grouped the punched information in the several ways required, tabulations were printed by the machine. It was those tabulations that provided the data from which were obtained the tables as well as the maps.

In order to secure information about geographical relationships that would not be apparent otherwise, maps were drawn from the tabulated data, each map showing for a specific "center" the origin of its enrollments. In all, maps were prepared depicting the origin of the enrollments for 50 of the 73 postgraduate course centers. The remainder were not mapped for one of the following three reasons: 1. The number of enrollments was less than 20 and thus insufficient to provide significant information. 2. All of the enrollments came from the immediate vicinity of the city. 3. So many of the enrollments came from a widely scattered area throughout the United States that no regionalization was evident.

After the preparation of all the maps to the same scale of miles (2⅛ in. per 100 mi., with the master map for the United States thus being about 64 in. across), it was possible to prepare radii graduated in miles on transparent plastic to determine travel distances for the centers mapped. It was also possible to study the individual maps and compare them by superimposition to determine areas of overlap. In this way, significant relation or lack thereof between adjacent postgraduate course centers could be identified and the extent of the educational service area overlap determined.

The foregoing were the basic materials of the study from which were prepared rank order tables, correlations, and relationships, and from which the conclusions were drawn.

Comment

It should be made perfectly clear that the data collected, insofar as numbers of enrollments is concerned, does not reveal and should not be inter-

preted as showing the number of individual physicians enrolled in postgraduate courses. Enrollments cannot be equated with individuals because one physician may and often does enroll in more than one course. Thus, 10 enrollments may mean that one physician enrolled in 10 courses, or that two physicians each enrolled in 5 courses, or indeed any combination whose product equals the number of enrollments. The only valid relationship between numbers of individual physicians and numbers of enrollments is that there cannot be a higher number of individuals than is the total enrollment for the country. There can be and probably often are fewer individual physicians than is the number of enrollments or their sum.

TABLE 1.—*Comparison of Characteristics of Courses in Geographical Study and of All Courses Reported in 1956-1957*

	% in Present Study	% of Total Reported
Kind of course		
Continuous refresher	57	58
Intermittent refresher	41	30
Other	2	12
Methods of education		
Active	81	87
Passive	19	13
Designed for		
General practitioners and partial specialists	62	68
Full-time specialists	27	20
Both of above	11	11
Location of course		
Medical school	65	59
Nonschool hospital	21	24
Hotel	2	4
Other	12	13
Sponsorship of course		
Medical school	42	35
Postgraduate school	21	26
Hospital	11	12
Medical society	11	14
Government and other	15	13

Only if there were a national registry of the postgraduate course activities of all physicians in the United States would it be possible to secure information on the actual number of physicians enrolled in postgraduate courses in any given year. The data in this study about the mobility of physicians and their travel to places distant from their home state makes this conclusion inescapable.

This study is not presented as being totally inclusive, although it comprises a sufficiently large and representative sampling to enable significant conclusions to be drawn. The number of courses, as well as the number of enrollments, should always be understood in this report to refer only to the 695 courses regarding which geographical data on enrollments was reported to the Council (73% of the total of 951 courses reported for 1956-1957 excluding circuit and home study courses) and only to the 20,432 enrollments for which geographical source was reported (78% of the total enrollments of 26,231 reported in 1956-1957 exclusive of the 8,682 in circuit and home study courses). Therefore, when a state is cited as having no courses or as having a certain rank order, this may not be absolutely true, but it is the fact within the framework of this study, which can utilize only data that was supplied. Repeated requests were made to all sponsors of the courses listed for enrollment and geographical information. In 11 instances, seven such requests were made of each; in 2 instances, eight requests were made. In fact, there was a median of four requests made for information from sponsors who did not supply the information.

It is known that such lack of information distorted the picture in at least three centers, i. e., Minneapolis, Chicago, and San Francisco. In most other instances the data lacking was less important because of the presence of other institutions and organizations in the center cities which did supply sufficient adequate information or because the institutions or organizations which did not cooperate had relatively few enrollments or courses. It is

TABLE 2.—*List of Seventy-three Postgraduate Course Centers in Study, with Code Numbers of Composite Center*

Code No.	Course Center	Code No.	Course Center
01	Montgomery, Ala.*	35	Omaha
02	Los Angeles (including La Guna Beach and Duarte)	36	Jersey City and Newark, N. J.
03	Carmel and Monterey, Calif.	37	New York
04	San Francisco, (including Oakland, Santa Rosa, Martinez & Castro Valley)	38	Roslyn and Glen Cove, N. Y.
05	Fresno, Calif.	39	Albany, N. Y.
06	San Diego, Calif.*†	40	Buffalo
07	Santa Barbara, Calif.	41	Glens Falls, N. Y.†
08	Colorado Springs, Colo.*	42	Rochester, N. Y.
09	Denver, Colo.	43	Syracuse, N. Y.
10	New Haven and Middleton, Conn.	44	Asheville, N. C.
11	New London, Conn.*	45	Chapel Hill and Durham, N. C.
12	Wilmington, Del.†	46	Charlotte, N. C.
13	Miami (including Miami Beach & Coral Gables), Fla.	47	Morganton, N. C.
14	Jacksonville, Fla.	48	Cincinnati
15	Atlanta, Ga.*	49	Cleveland
16	Warm Springs, Ga.*	50	Columbus, Ohio
17	Chicago (including Evanston, Chicago Heights & Joliet)	51	Oklahoma City
18	Indianapolis	52	Portland, Ore.
19	Des Moines, Iowa	53	Philadelphia
20	Iowa City	54	Pittsburgh
21	Kansas City, Kan.	55	Charleston, S. C.
22	Louisville, Ky.	56	Nashville, Tenn.
23	New Orleans	57	Oak Ridge, Tenn.
24	Shreveport, La.	58	Austin, Texas†
25	Waterville, Maine*	59	Corpus Christi, Texas†
26	Baltimore	60	El Paso and Fort Bliss, Texas
27	Boston (including New Bedford & Waltham)	61	Houston, Texas
28	Brewster, Mass.*	62	Lubbock, Texas†
29	Southbridge, Mass.‡	63	San Angelo, Texas†
30	Ann Arbor, Mich.	64	San Antonio, Texas
31	Minneapolis and St. Paul§	65	Temple, Texas
32	Jackson, Miss.	66	Texarkana, Texas
33	St. Louis (including Belleville, Ill.)	67	Salt Lake City
34	Lincoln, Neb.	68	Burlington, Vt.
		69	Charlottesville, Va.
		70	Seattle and Tacoma, Wash.
		71	Madison, Wis.
		72	Washington, D. C.
		73	Providence, R. I.

† Only local physicians attended.
‡ Course actually held in New York City.
§ Because of lack of reporting by University of Minnesota, it appeared that only local enrollments occurred.
* Fewer than 20 enrolled.

also possible that of those reporting enrollments and geographical source, the data was incomplete. This is known to be true in one midwestern city, but if the complete information had been reported in that instance, it would have made an insignificant change in the rank order of enrollments, although it might have increased an already large average travel distance.

the courses in this geographical study are similarly distributed in terms of kind of course, sponsorship, location, educational methods, and who designed for, as compared with all courses reported in 1956-1957.[1] Table 1 presents this comparison. It reveals a remarkable similarity without significant differences, demonstrating that the 695 courses in the present study are a truly representative sampling

TABLE 3.—*Enrollment, Courses, and Physician Populations by State Centers*

State of Origin of Enrollment	Physician Population	Courses, No.	Centers, No.		Subjects, No.	Physician Enrollment, No.	Enrollment: Population, %	Enrollment, No.		Enrollment, %	
			Absolute	Area				In-State Courses	Out-of-State Courses	In-State Courses	Out-of-State Courses
Alabama	2,344	1	1	1	1	70	2.9	0	70	0.0	100.0
Arizona	1,075	0	..	0	0	32	2.9	0	32	0.0	100.0
Arkansas	1,550	0	..	0	0	69	4.4	0	69	0.0	100.0
California	21,803	64	19	6	20	2,702	12.4	2,480	222	91.7	8.3
Colorado	2,390	5	2	2	4	345	14.4	263	82	76.2	23.8
Connecticut	3,906	18	3	2	9	601	15.3	414	187	68.9	31.1
Delaware	514	1	1	1	1	51	9.9	22	29	43.2	56.8
Florida	4,912	8	5	2	5	385	7.8	248	137	64.4	35.6
Georgia	3,320	8	2	2	2	64	1.9	5	59	7.8	92.2
Idaho	564	0	..	0	0	64	11.3	0	64	0.0	100.0
Illinois	12,211	21	2	1	12	638	5.2	414	224	64.9	35.1
Indiana	4,364	8	1	1	8	259	5.9	94	165	36.3	63.7
Iowa	2,715	13	2	2	13	780	28.7	596	184	76.4	23.6
Kansas	2,199	25	1	1	15	688	31.3	608	80	88.4	11.6
Kentucky	2,581	1	1	1	1	123	4.7	30	93	24.4	75.6
Louisiana	3,387	7	2	2	7	111	3.3	26	85	23.4	76.6
Maine	978	1	1	1	1	46	4.7	0	46	0.0	100.0
Maryland	3,824	3	2	1	3	267	7.0	74	193	27.7	72.3
Massachusetts	8,701	38	12	3	18	618	7.1	456	162	73.8	26.2
Michigan	8,118	15	1	1	11	526	6.5	321	205	61.0	39.0
Minnesota	4,281	15	2	1	12	467	10.9	374	93	80.1	19.9
Mississippi	1,576	2	1	1	2	234	14.8	213	21	91.1	8.9
Missouri	4,752	2	2	1	2	521	10.9	8	513	1.6	98.4
Montana	629	0	..	0	0	36	5.7	0	36	0.0	100.0
Nebraska	1,515	13	3	2	12	439	29.0	327	112	74.5	25.5
Nevada	255	0	..	0	0	11	4.3	0	11	0.0	100.0
New Hampshire	771	0	..	0	0	37	4.8	0	37	0.0	100.0
New Mexico	647	0	..	0	0	63	9.7	0	63	0.0	100.0
New Jersey	6,825	12	3	1	9	1,047	15.3	632	415	60.4	39.6
New York	30,786	269	28	7	35	2,739	8.9	2,419	320	88.3	11.7
North Carolina	3,991	7	4	4	2	380	9.5	306	74	80.5	19.5
North Dakota	483	0	..	0	0	23	4.8	0	23	0.0	100.0
Ohio	10,986	23	10	3	12	1,191	10.9	775	416	65.1	34.9
Oklahoma	2,143	1	1	1	1	122	5.7	10	112	8.2	91.8
Oregon	2,142	10	2	1	9	329	15.3	247	82	75.1	24.9
Pennsylvania	14,507	22	8	2	14	729	5.0	285	444	39.1	60.9
Rhode Island	1,035	1	1	1	1	87	8.4	37	50	42.5	57.5
South Carolina	1,735	2	1	1	2	211	12.2	171	40	81.0	19.0
South Dakota	490	0	..	0	0	32	6.5	0	32	0.0	100.0
Tennessee	3,466	3	3	2	3	138	4.0	44	94	31.9	68.1
Texas	8,770	44	13	9	20	1,273	14.5	1,051	222	82.6	17.4
Utah	1,026	1	1	1	1	43	4.2	3	40	7.0	93.0
Vermont	550	10	1	1	3	64	11.6	38	26	59.4	40.6
Virginia	3,677	1	1	1	1	258	7.0	143	115	55.4	44.6
Washington	3,269	5	3	1	4	354	10.8	146	208	58.7	41.3
West Virginia	1,671	0	..	0	0	58	3.5	0	58	0.0	100.0
Wisconsin	3,920	1	1	1	1	143	3.6	11	132	7.7	92.3
Wyoming	256	0	..	0	0	37	14.4	0	37	0.0	100.0
District of Columbia	2,417	14	5	1	10	197	8.1	149	48	75.6	24.4
Totals		695	..	73	..	19,702	...	...	...	...	...

Despite the foregoing reservations regarding lack of perfection in the study, it should be emphasized that such a large percentage of the total enrollments and total number of courses is represented that it would seem reasonable to place considerable confidence in the validity of the over-all conclusions and hypotheses. However, this is the case only if

of all the postgraduate courses reported to the Council for the year 1956-1957. The disparities in table 1 are either not significant or would be expected. For instance, the necessary exclusion of the circuit and home study courses from the present study accounts for the difference of 10% in the "other" kinds of courses.

Table 2 provides the list of the 73 "postgraduate course centers" by which geographical data were analyzed. It should be noted that only 8 of the 73 had entirely local enrollments, while an additional 7 had fewer than 20 enrollments during the year. The eight centers having only local enrollments

Of the 73 centers, maps were drawn for 50. In addition to the 15 centers having too few or entirely local enrollment as a reason for nonmapping, there were 6 centers whose enrollment was too widespread over the entire country or world for a map to reveal useful regionalization. These were Boston;

TABLE 4.—*Number of Enrollments, with*

Center of Enrollment	No. of Physicians Enrolled from State	New England						Middle Atlantic						South Atlantic																
		Me.	Conn.	Mass.	N. H.	R. I.	Vt.	N. Y.	N. J.	Pa.	Del.	Md.	D. C.	Va.	W. Va.	N. C.	S. C.	Ga.	Fla.	Ala.	Ky.	Miss.								
Code No.		25	10	11	27	28	..	73	68	37	38	30	40	41-43	36	53	54	12	26	72	60	..	44	45	46	47	55	15	16	13	14	01	22	32
Source of Enrollment																																	
Maine	46	..	1	..	21	..	..	..	1	12	..	..	1	..	..	6	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Connecticut	599	..	405	9	34	..	..	1	5	93	..	..	5	..	..	23	1	..	..	15	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Massachusetts	424	..	29	1	418	19	..	3	25	41	..	9	12	..	..	11	5	..	..	19	..	..	..	..	1	..	..	..	..	2	..	..	..	..
New Hampshire	27	..	..	..	25	..	..	..	3	4	..	..	2	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rhode Island	50	..	..	..	25	..	..	37	2	14	..	..	2	..	..	2	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Vermont	64	..	9	..	4	..	..	..	38	6	..	..	..	..	..	6	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
New York	2,738	..	2	..	52	..	..	..	10	1,503	32	219	278	395	..	67	3	..	..	92	1	..	..	..	1	..	..	1	..	2	..	..	..	..
New Jersey	1,047	..	..	..	15	..	..	..	3	244	..	..	2	..	632	84	3	..	..	30	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pennsylvania	729	..	..	..	37	..	..	..	2	139	1	..	74	3	..	255	30	..	..	76	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Delaware	51	..	..	..	1	..	..	..	..	5	..	..	1	..	..	13	..	22	..	2	..	..	..	1	..	..	..	..	..	1	..	..	..	..
Maryland	267	..	..	..	8	..	..	..	4	25	..	..	2	..	..	13	..	..	74	111	..	..	..	..	..	..	..	..	..	..	..	1	..	..
District of Columbia	197	4	..	..	1	..	..	..	..	19	..	..	..	..	..	4	..	..	..	149	..	..	..	1	..	..	..	..	..	..	..	..	..	..
Virginia	258	..	..	..	8	..	..	..	..	28	..	..	1	..	..	7	1	..	..	48	143	..	..	1	..	..	..	..	..	..	..	1	..	..
West Virginia	58	..	..	..	5	..	..	..	1	13	..	..	1	..	..	6	..	..	..	3	2	..	..	..	..	..	..	..	..	..	..	..	..	..
North Carolina	380	..	..	..	7	..	..	..	..	21	..	..	..	..	..	4	..	..	..	22	..	..	40	103	97	66	2	..	..	..	..	..	..	..
South Carolina	211	..	..	..	3	..	..	..	..	7	..	..	..	..	..	1	..	..	..	11	..	..	..	2	6	..	171	..	..	..	..	..	..	..
Georgia	64	..	..	..	4	..	..	..	1	8	..	..	..	..	..	5	..	..	..	20	2	..	..	..	..	..	..	3	2	..	..	..	..	..
Florida	385	..	..	..	13	..	..	..	1	43	..	..	1	..	..	16	2	..	..	14	..	..	..	1	..	..	..	..	..	142	106	..	..	..
Alabama	70	..	1	..	8	..	..	..	..	8	..	..	..	..	..	7	1	..	..	12	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kentucky	123	..	..	..	5	..	..	..	..	15	..	..	..	..	..	5	2	..	..	13	..	..	..	..	..	..	..	1	..	..	..	30	..
Mississippi	234	..	..	..	1	..	..	..	..	1	..	..	..	..	..	2	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	213
Tennessee	138	..	..	..	6	..	..	..	..	24	..	..	..	..	..	8	..	..	..	28	..	..	..	..	..	..	..	2	..	..	..	..	..	..
Louisiana	111	..	..	..	3	..	..	..	..	12	..	..	..	..	..	3	..	..	..	13	..	..	..	..	2	..	..	..	..	..	..	..	..	6
Texas	1,273	..	..	..	13	..	..	..	..	24	..	..	..	..	..	11	..	..	..	35	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Minnesota	467	..	2	..	1	..	..	..	..	13	..	..	..	..	..	8	..	..	..	3	..	..	..	..	..	..	..	..	..	..	1	..	..	..
North Dakota	23	..	..	..	..	..	..	..	..	4	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..
South Dakota	32	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Iowa	780	..	..	..	5	..	..	..	..	8	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..
Kansas	688	..	..	..	3	..	..	..	..	7	..	..	..	..	..	8	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Nebraska	439	..	..	..	1	..	..	..	..	5	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Missouri	521	..	..	..	3	..	..	..	..	13	..	..	..	..	..	6	2	..	..	11	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Arkansas	69	..	..	..	4	..	..	..	..	3	..	..	..	..	..	2	..	..	..	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Oklahoma	122	..	..	..	2	..	..	..	..	4	..	..	..	..	..	1	..	..	..	5	..	..	..	..	..	..	..	..	..	..	2	..	..	..
Colorado	345	..	..	..	3	..	..	..	..	14	..	..	..	..	..	6	..	..	..	11	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Illinois	359	..	..	..	13	..	..	..	2	29	..	..	3	..	..	10	2	..	..	16	..	..	..	..	2	..	..	..	..	..	..	..	..	..
Indiana	254	..	..	..	8	..	..	..	..	16	..	..	13	..	..	13	1	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	10	..
Michigan	526	..	..	..	20	..	..	..	3	53	7	..	5	..	..	18	5	..	..	11	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ohio	1,191	..	..	..	19	..	..	..	..	81	..	..	58	..	..	48	13	..	..	30	..	..	..	..	..	..	..	..	..	1	..	..	..	..
Wisconsin	134	..	1	..	5	..	..	..	..	20	..	..	..	..	..	16	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Arizona	32	..	1	..	2	..	..	..	..	..	..	..	..	..	..	2	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..
New Mexico	63	..	..	..	3	..	..	..	..	1	..	..	..	..	..	..	..	..	..	6	..	..	..	1	..	..	..	..	..	..	..	..	..	..
Utah	43	..	..	..	1	..	..	..	..	5	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..
Wyoming	37	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Nevada	11	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Idaho	64	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Montana	36	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Washington	354	..	..	..	2	..	..	..	..	6	..	..	..	..	..	3	1	..	..	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Oregon	329	..	1	..	2	..	..	..	..	3	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
California	2,702	..	4	..	16	..	..	..	..	43	..	..	..	..	..	13	2	..	..	34	..	..	..	..	..	..	..	..	2	2	..	..	..	..
From outside 48 States & D. C.		2	7	..	104	..	..	..	11	134	..	..	111	..	7	29	2	..	..	73	..	..	..	..	2	..	..	4	6	59	..	5	..	..
Total		6	463	10	935	19	..	41	112	2,781	40	228	572	398	639	747	77	22	74	956	148	..	40	110	112	66	173	10	13	212	107	7	40	219

involved a total of 683 enrollments (table 4) (or 3% of the total enrollments) in 34 courses at 10 institutions. The eight centers having fewer than 20 enrollments in each had a total of 98 enrollments by physicians.

Glen Cove and Roslyn, N. Y.; New York City; Oak Ridge, Tenn.; Salt Lake City; and St. Louis (whose hospital alumni day remained in the study). The course of one "center" (Southbridge, Mass.) actually took place in New York City and the enrollments

were so treated. However, the center number had already been assigned to Southbridge and so it is listed in table 2.

Table 3 presents the basic data from which the rank orders of tables 9 through 11 were obtained. Table 4 shows the geographical source of the 19,702 enrollments from states arranged by region (rather than alphabetically) along the left side to each side to each of the 72 centers similarly arranged by region along the top of the table. It should be noted that table 4 presents the entire geographical data if only state boundaries are considered, although the maps rather than table 4 are required to obtain the travel distance information. Physicians may cross a state line, such as from Kansas City, Mo., to Kansas City, Kans., without traveling more than a few blocks to a few miles.

States of Origin, at Seventy-three Centers

South Central								Central								North Central							Western						Pacific							Totals
Tenn.		La.		Texas	Minn.	N. D.	S. D.	Iowa		Kan.	Neb.		Mo.	Ark.	Okla.	Colo.	Ill.	Ind.	Mich.	Ohio			Wis.	Ariz.	N. M.	Utah	Wyo.	Nev.	Ida.	Mont.	Wash.	Ore.	Calif.					
56	57	23	24	58-66	31	..	..	19	20	21	34	35	33	..	51	08	09	17	18	30	48	49	50	71	..	..	67	..	..	..	..	70	52	02	03	04	05	06	07	
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	46
..	..	..	..	3	..	..	..	1	..	..	1	..	1	..	1	..	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	601
..	5	..	..	2	..	..	..	..	..	3	..	..	6	..	..	..	..	3	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	618
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	37
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	87
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	64
..	6	..	..	9	..	..	..	..	..	2	..	..	4	..	..	..	2	35	1	3	2	11	3	..	..	..	..	..	..	..	..	1	..	..	..	2	..	..	..	2,739
..	..	1	..	..	..	..	..	..	..	..	..	..	4	..	..	..	3	18	..	..	1	3	2	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	1,047
5	2	3	..	3	..	..	..	..	1	2	..	..	9	..	..	..	5	23	1	2	2	48	2	..	..	..	1	..	..	..	..	..	..	1	..	2	..	..	..	729
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	51
..	3	..	..	5	..	..	..	..	..	1	..	..	3	..	..	..	4	..	2	3	2	2	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	267
..	1	..	..	2	..	..	..	..	..	1	..	1	4	..	..	..	2	..	..	1	3	1	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	..	..	197
1	..	..	1	2	..	..	..	..	..	..	..	..	2	..	1	..	2	2	1	1	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	5	..	..	..	258
1	..	..	..	2	..	..	..	..	..	4	..	..	1	..	..	..	1	2	..	3	..	12	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	58
..	4	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	2	5	1	1	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	380
2	..	1	1	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	211
3	..	4	..	1	..	..	..	..	2	1	..	..	..	..	1	..	2	3	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	64
3	..	5	2	6	..	..	..	..	..	2	..	..	7	..	..	..	1	13	..	..	..	..	3	..	..	..	1	..	..	..	..	..	..	3	..	..	..	..	..	385
7	..	4	1	5	..	..	..	..	..	1	..	..	4	..	..	..	..	6	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	3	..	..	..	70
4	..	1	..	1	..	..	..	..	..	..	..	1	1	..	..	..	6	12	1	7	6	5	2	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..	..	123
..	..	6	..	4	..	..	..	..	..	2	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	234
39	5	..	..	4	..	..	..	..	..	3	..	..	6	..	1	..	4	5	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	138
..	..	19	7	25	..	..	..	..	..	4	..	..	6	..	1	..	2	3	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	111
2	1	6	8	1,051	..	..	..	..	1	37	..	2	2	..	3	..	41	12	3	1	3	2	..	..	..	..	1	..	..	..	..	2	..	7	..	5	..	..	..	1,273
..	..	..	1	5	374	..	..	..	3	17	1	4	2	..	2	..	12	15	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	467
..	..	..	..	..	..	..	..	..	1	6	..	..	..	..	..	..	5	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23
..	..	..	..	..	..	..	..	..	1	5	4	11	..	..	..	..	6	4	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	32
1	2	..	..	1	..	..	..	126	470	92	1	25	12	..	2	..	10	15	..	3	..	..	..	1	..	..	2	..	..	..	..	..	..	1	..	..	..	..	..	780
..	1	1	..	4	..	..	..	..	..	608	..	..	2	..	3	..	34	8	..	1	1	1	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	688
..	1	..	..	1	..	..	..	..	5	65	189	138	4	..	..	..	17	5	..	2	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	2	..	..	..	439
2	..	..	..	..	..	..	..	..	..	445	..	2	8	..	3	..	19	2	.	..	..	..	1	..	..	1	..	..	..	..	..	1	..	1	..	1	..	..	..	521
..	..	3	1	14	..	..	..	..	..	21	..	..	4	..	4	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	69
..	..	3	1	3	..	..	..	..	..	58	..	..	4	..	10	..	14	10	2	..	..	2	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	122
..	..	..	..	2	..	..	..	..	1	27	..	..	5	..	1	18	245	4	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	2	..	4	..	..	..	345
4	4	4	..	6	..	..	..	..	22	26	..	..	17	..	..	..	17	414	2	5	6	6	4	15	..	..	..	..	..	..	..	..	..	7	..	2	..	..	..	638
1	..	4	..	3	..	..	..	..	3	6	..	..	9	..	3	..	12	25	94	7	8	13	3	..	..	..	1	..	..	..	..	..	..	1	..	1	..	..	..	259
..	..	3	..	5	..	..	..	..	1	11	..	3	6	..	2	..	14	19	3	321	1	10	2	..	..	..	..	..	..	..	..	1	..	1	..	1	..	..	..	526
3	7	..	1	10	..	..	..	..	..	13	..	4	20	..	..	..	8	24	2	67	385	312	78	..	..	..	2	..	..	..	..	..	..	..	..	2	..	..	..	1,191
1	2	1	..	..	..	..	..	..	3	10	..	1	4	..	2	..	11	37	..	7	3	1	2	11	..	..	..	..	..	..	..	..	2	1	..	..	..	..	..	143
..	..	1	1	2	..	..	..	..	..	3	..	..	..	..	..	..	5	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	..	4	..	..	..	32
..	..	1	..	17	..	..	..	..	..	5	..	..	2	..	1	..	22	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	2	..	1	..	..	..	63
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	3	..	6	..	..	..	43
..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	29	1	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	37
..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	3	..	..	..	11
..	..	..	..	4	..	..	..	..	..	..	..	..	2	..	..	..	5	1	..	..	..	..	..	..	..	..	1	..	..	..	..	4	37	2	..	3	..	..	..	64
..	..	1	..	1	..	..	..	..	..	1	..	..	..	..	..	..	11	2	..	..	1	..	..	..	..	..	2	..	..	..	..	1	9	1	..	3	..	..	..	36
..	..	..	..	3	..	..	..	..	1	1	..	3	..	..	..	..	16	1	..	..	1	..	..	..	..	..	..	..	..	..	..	146	138	10	..	14	..	..	..	354
..	..	..	..	..	..	..	..	..	..	..	..	3	1	..	1	..	19	1	1	..	..	..	..	..	..	..	..	..	..	..	..	18	247	14	..	16	..	..	..	329
..	1	..	..	9	..	..	..	..	3	2	..	3	5	..	..	..	36	7	..	..	3	1	13	..	..	..	6	..	..	..	..	9	8	1,023	347	802	168	15	35	2,702
1	27	..	1	3	..	..	..	..	..	1	..	..	..	..	2	..	5	14	2	28	2	3	3	..	..	..	3	..	..	..	..	17	41	6	..	15	..	..	..	730
80	72	72	26	1,219	374	..	..	126	519	1,488	195	202	172	..	44	18	608	708	118	469	438	446	122	28	..	..	26	..	..	..	..	296	482	1,097	348	1,014	168	15	35	20,432

Since the geogpraphical aspect of this study was devoted chiefly to the 19,702 enrollments from the 48 states and District of Columbia (Alaska not then being a state), it might be noted in passing that those centers having the greatest enrollment

TABLE 5.—*Scheduled Courses Given by Category and Geographical Location*

	1 Allergy	2 Anatomy	3 Anesthesiology	4 Basic Sciences	5 Cardiovascular Disease	6 Clinical Pathology	7 Dermatology	8 Electrocardiography	9 Electroencephalography	10 Endocrinology	11 Endoscopy	12 Forensic Medicine	13 Fractures	14 Gastroenterology	15 General Practice	16 Gynecology	17 Hematology	18 Internal Medicine	19 Malignant Disease	20 Neurology	21 Neurology and Psychiatry	22 Obstetrics	23 Obstetrics and Gynecology	24 Occupational Medicine	25 Ophthalmology	26 Ophthalmology and Otolaryngology	27 Orthopedic Surgery	28 Otolaryngology	29 Pathology	30 Pediatrics	31 Peripheral Vascular Disease	32 Physical Medicine Rehabilitation	33 Physiology	34 Pollomyelitis	35 Proctology	36 Psychiatry	37 Psychosomatic Medicine	38 Public Health	39 Pulmonary Disease	40 Radiology	41 Surgery	42 Urology	Total
Maine		2																																								1
Connecticut																																										18
Massachusetts					3			5					1																														38
New Hampshire																																										0
Rhode Island																																										1
Vermont																																										10
New York		12	5		14		4	14		4	1		1	6	24	6		26		1	1	3	4	7	10		5	6	15	15			4	43			12	11			269
New Jersey			1		21																								1	3								1				12
Pennsylvania			2		21			21		1				1	1		21	1														1										22
Delaware																																										1
Maryland		1		1		1		1				1			1																											3
District of Columbia																									1				3					2					2	1		14
Virginia															1																											1
West Virginia																																										0
North Carolina								2							5																											7
South Carolina															1						1																					2
Georgia						6												2																								8
Florida		1						1																																		2
Alabama						1																																				1
Kentucky																																										0
Mississippi																																										0
Tennessee																																										1
Louisiana								1							1		1	1																								3
Texas		1			1		1	1		1			1	2	9		1	5	2			1		1																		27
Minnesota			2		1										2	1		1		1																						7
North Dakota													1																														44
South Dakota																																										15
Iowa							1	1						1	3		1	1	1	1																						0
Kansas							1	1						1	3		1	1	1	1																						0
Nebraska								1						1	1		1	2	1																							13
Missouri														1																												25
Michigan																																										13
Oklahoma																																										2
Colorado																																										0
Illinois					1			1					2	1	21	7		1																								1
Indiana								1					2	1																												5
Michigan								1					1	1			1	4																								21
Ohio															3		1	2																								8
Wisconsin																																											15
Arizona																																											23
New Mexico																																											1
Utah																																											0
Wyoming																																											0
Nevada																																											1
Idaho																																											0
Montana																																											0
Washington																																											0
Oregon																																											6
California		1	9		5		1		43	2	11	2	1	7	16	75	10	16	77	7	14	3	10	11	14	23	4	8	18	12	36	5	8	4	5	8	54	3	1	16	82	33	4	695
Totals	5	28	14	2	36	8	9	43	2	11	2	1	7	16	75	10	16	77	7	14	3	10	11	14	23	4	8	18	12	36	5	8	4	5	8	54	3	1	16	82	33	4	695

from Canada and other countries were as follows: Boston, New York City, and Buffalo each had more than 100 such enrollments, and the District of Columbia and Miami each had more than 50. It is probable, on the basis of other information, that Philadelphia would be included in this group if the Graduate School of Medicine of the University of Pennsylvania had reported its out-of-country enrollments. There were a total of 730 enrollments from Canada and other countries in this study, or 3.5% of the total enrollments.

Table 5 presents the number of courses by state and category of subject matter as derived from the title of the course and any accompanying literature. The states were arrayed regionally in order that a clear picture of the geographical distribution of the subject matter could be obtained. Because the significance of the information in table 5 is more apparent in relation to the mobility of physicians and their demonstrated travel to courses over relatively large distances, discussion of the subject category information will be found later in this report.

Physician Mobility Marked

In table 6 is presented travel distance information obtained for enrollments to the 50 centers for which maps were prepared. The number of enrollments coming from considerable distances should be noted. It should be remarked that not all of the enrollments to any of the centers could be located on a map of the region, some having come from more distant places. Thus, in consulting this table, attention should be paid to the actual proportion of the total enrollments that were mapped to each center. The difference between that figure and 100% would represent travel from a greater distance. Although the maps were originally conceived to show regionalizations of postgraduate medical education, their more important uses in most instances were as a means of determining actual distances traveled by physicians enrolling in courses.

Table 7 presents the average travel distances in rank order from least to greatest. It, again, refers only to that proportion of the enrollment to each center that was mapped. The average travel distances were much larger than would have been anticipated.

By combining the information from the several states that compose a generally recognized region—such as California, Washington, and Oregon for the Pacific Region—table 8 was prepared. It was expected that this kind of grouping might show regional differences in willingness to travel, which to a degree it does. It serves better to emphasize the mobility of physicians throughout the country to postgraduate courses.

The evidence of physician travel over relatively large distances to enroll in postgraduate courses is one of the most important and least expected results of this study. It places the needs in this phase of education and the manner of meeting those needs in an entirely different dimension than if one assumes, as most have done in the past, that educational opportunities must be near to physicians if they are to take advantage of them. It also makes it evident that planning to meet the needs of physicians in their continuation education should not be

TABLE 6.—*Travel Distances of Physicians Enrolled in Courses*

Code No.	Course Center	Distance Traveled, Mi.									% Enrollment Mapped and Comprising Foregoing
		From City	0-50	50-100	100-150	150-300	300-500	500-700	Over 700*	Average	
02	Los Angeles	365	166	170	48	23	16	47	13	23	87	79.3
03	Carmel & Monterey, Calif.	63	85	50	65	37	20	1	..	..	85	95.1
04	San Francisco ...	460	145	119	28	1	24	57	19	2	66	84.3
05	Fresno, Calif.	69	34	35	20	5	3	..	..	..	46	98.8
07	Santa Barbara, Calif.	10	17	6	1	..	..	..	..	..	29	97.1
09	Denver, Colo.	161	18	46	22	18	40	79	22	11	171	62.4
10	New Haven, Conn.	148	166	32	1	..	..	..	..	..	19	70.4
13	Miami, Fla.	139	3	..	..	..	..	..	..	..	..	67.0
14	Jacksonville, Fla.	71	5	2	8	4	9	7	..	..	63	99.1
17	Chicago	81	32	32	20	3	1	..	..	..	38	35.5
18	Indianapolis	12	32	32	20	3	1	..	..	..	65	84.7
19	Des Moines, Iowa	60	27	17	8	..	..	..	..	..	26	88.9
20	Iowa City	43	100	177	123	44	16	..	..	..	85	96.9
21	Kansas City, Kan.	329	156	106	122	236	147	56	27	..	119	79.0
22	Louisville, Ky. ...	20	17	1	2	..	..	..	..	..	19	100.0
23	New Orleans	8	2	5	2	2	6	10	5	1	249	56.9
24	Shreveport La. ..	1	0	1	2	6	4	2	0	1	231	65.4
26	Baltimore, Md. ..	69	5	..	..	..	..	..	..	..	2	100.0
30	Ann Arbor, Mich.	24	184	101	62	22	19	6	..	..	73	89.1
32	Jackson, Miss. ...	109	19	46	18	9	..	..	..	..	38	91.7
34	Lincoln, Neb.	8	28	63	29	15	19	30	..	..	140	98.5
35	Omaha	25	40	55	32	20	6	..	..	..	79	88.1
36	Jersey City, N.J..	350	246	26	1	..	..	..	..	..	13	98.8
39	Albany, N.Y.	80	82	52	5	..	2	7	..	..	42	100.0
40	Buffalo	55	86	66	52	56	77	15	..	..	118	71.1
42	Rochester, N.Y. ..	17	46	28	..	15	..	..	..	..	55	95.5
43	Syracuse, N.Y. ...	34	35	58	12	2	2	..	..	..	53	97.3
44	Asheville, N.C. ...	24	13	2	..	..	..	..	..	..	12	97.5
45	Chapel Hill, N.C.	7	20	26	38	11	7	..	..	..	100	99.1
46	Charlotte, N.C. ..	70	10	18	6	..	..	..	..	..	22	92.9
47	Morgantown, N.C.	23	40	..	1	..	..	..	..	..	17	97.0
48	Cincinnati	354	28	8	1	..	8	..	..	..	8	91.0
49	Cleveland	210	44	37	46	18	10	20	..	..	60	86.0
50	Columbus, Ohio .	20	15	15	19	1	6	..	..	..	73	62.3
51	Oklahoma City ..	6	2	2	..	6	5	2	..	..	143	52.3
52	Portland, Ore. ...	116	61	43	84	23	57	33	6	..	116	87.8
53	Philadelphia	146	90	103	24	8	35	40	..	..	95	69.9
54	Pittsburgh	25	..	1	4	..	8	3	..	..	88	58.2
55	Charleston, S.C.	77	3	24	38	23	6	..	..	..	71	99.0
56	Nashville, Tenn. .	7	13	14	9	6	7	2	..	..	103	72.5
60	El Paso & Ft. Bliss, Texas	49	1	1	4	1	4	2	1	..	50	92.6
61	Houston, Texas .	162	37	44	40	82	116	56	17	..	149	88.9
65	Temple, Texas ...	5	4	5	4	3	6	3	..	..	135	46.9
64	San Antonio, Texas	162	21	31	38	2	14	4	..	..	48	87.9
66	Texarkana, Texas	10	9	3	..	..	..	..	..	..	20	100.0
68	Burlington, Vt. ..	18	9	11	14	20	3	..	..	..	94	67.0
69	Charlottesville, Va.	6	37	59	30	3	3	1	..	..	77	93.9
70	Seattle & Tacoma	66	62	6	14	4	12	2	..	..	52	81.9
71	Madison, Wis. ...	1	3	15	5	..	..	..	..	..	76	85.7
72	Washington, D.C.	48	65	11	71	38	103	3	..	..	132	36.4

* Within the region.

confined to the locality or even the state or region in which the physicians practice, within certain limits as will be set forth when the "threshold factor" is considered. The educational opportunities in Ohio and Tennessee are important for Kentucky physicians, for instance, as are also the courses offered in much more distant places.

There is an interesting correlation between the presence of a medical school active in postgraduate courses and the distance from which enrollments in those courses came. With four exceptions, all 32 cities (or 87.5%) drawing enrollments from an average travel distance greater than 50 miles (table 7) have medical schools active in postgraduate courses. The four exceptions are in California, Texas, and Louisiana, where travel distances tend to be greater. However, only 8 (44%) of the 18 cities drawing from an average of 50 miles or less have medical schools. Those eight cities are in regions of the country where people are more reluctant to travel distances greater than 50 miles. The 10 cities having no medical schools and drawing enrollments with an average travel distance of 50 or fewer miles are in nine instances located in regions usually showing the greatest travel—Iowa, North Carolina, Texas, and California.

TABLE 7.—*Average Distances Traveled to Course Centers*

Course Center	Miles, No.
Miami, Fla.	0.5
Baltimore, Md.	2
Cincinnati	8
Asheville, N. C.	12
Jersey City, N. J.	13
Morgantown, N. C.	17
Louisville, Ky.	19
New Haven and Middleton, Conn.	19
Texarkana, Texas	20
Charlotte, N. C.	22
Des Moines, Iowa	26
Santa Barbara, Calif.	29
Chicago	38
Jackson, Miss.	38
Albany, N. Y.	42
Fresno, Calif.	46
San Antonio, Texas	48
El Paso and Fort Bliss, Texas	50
Seattle and Tacoma	52
Syracuse, N. Y.	53
Rochester, N. Y.	55
Cleveland	60
Jacksonville, Fla.	63
Indianapolis	65
Oakland, San Francisco, Santa Rosa, Martinez, and Castro Valley	66*
Charleston, S. C.	71
Columbus, Ohio	73
Ann Arbor, Mich.	73
Madison, Wis.	76
Charlottesville, Va.	77
Omaha	79
Iowa City	85
Carmel and Monterey, Calif.	85
Laguna Beach, Duarte, and Los Angeles	87
Pittsburgh	88
Burlington, Vt.	94
Philadelphia, Pa.	95
Chapel Hill, N. C.	100
Nashville, Tenn.	103
Portland, Ore.	116
Buffalo, N. Y.	118
Kansas City, Kan.	119
Washington, D. C.	132
Temple, Texas	135
Lincoln, Neb.	140
Oklahoma City	143
Houston, Texas	149
Denver	171
Shreveport, La.	231
New Orleans	249

* Median distance.

Twenty-two (88%) of 25 cities that are above the median average distance traveled (68.5 miles) have one or more medical school active in postgraduate medical education. Only 14 cities (56%) of the 25 that are below the median average travel distance of enrollments have one or more medical schools active in postgraduate courses.

There seems to be a significant correlation between the courses offered by medical schools and the willingness of those in the profession to travel over considerable distances to enroll in those courses. One is tempted to infer from this a qualitative factor that is appealing to the profession.

The Threshold Factor

If comparison is made between tables 9 and 10 and between tables 9 and 11, an interesting correlation appears. Those states (28) having zero to three course subjects in the state are below the median (211) in originating postgraduate course enrollments to anywhere in the United States, with the following five exceptions: Maryland (which is close to Washington, D. C., and Philadelphia), Mississippi (which is only barely above the median enrollment), Missouri (which is immediately adjacent to Kansas on whose eastern border are given many more than the median number of course subjects), North Carolina (whose circuit courses are not counted in this study), and Virginia (which is also close to Baltimore, Philadelphia, and Washington, D. C.). Thus all of the exceptions are susceptible of explanation.

On the contrary, those states (21) having four or more course subjects in the state are above the median in originating postgraduate course enrollments throughout the nation, except the following: District of Columbia (where many of the courses are by and designed for the military doctor) and Louisiana. The explanation for the latter exception is not clear.

There is also a positive correlation between the number of course subjects offered in a region to the number of physician enrollments from that region to courses anywhere in the United States. The correlation that was pointed out for each state holds even truer for geographical regions.

To demonstrate the correlations just described, the graph in figure 3 was prepared. As the graph in figure 4 shows, it is not possible to correlate the number of course subjects in a state or region with enrollment in that state or region.

It thus appears that there may be in postgraduate medical education a factor which could appropriately be termed the "threshold factor," because its effect seems to be analogous to the galvanic threshold or rheobase found in physiology. It seems that if the "threshold dose" of postgraduate medical education in terms of subject matter variety of courses is offered in a state or geographical region, physicians are sufficiently stimulated or challenged to almost "explode outward" in enrolling in postgraduate courses throughout the country. The "threshold stimulus" appears to be about four subjects per year in a region or state. This would not be an impracticable basis for inducing more of the profession to participate in continuing education.

It is, however, a repeated experience in statistical analysis—in fact a part of the working philosophy of scientists—that positive or negative correlations, no matter in what degree, do not themselves establish cause and effect relationships. Thus, it is entirely possible that the "threshold factor" is an unwarranted assumption based on positive correlation rather than on a true cause-effect relationship. Certainly it would be unrealistic to suppose that mere number of course subjects, without regard to their quality of educational experience and out of context with the needs of the profession, would be likely to stimulate physician enrollments in other postgraduate courses. The fact that the qualitative factor is important in education requires no statistical support. In addition, however, it may be that a certain minimal availability of educational experiences stimulates further educational activities requiring more effort, such as travel.

TABLE 8.—*Numbers and Percentages of Enrollments to Courses by Travel Distance*

Enrollment	To Pacific: Calif., Ore., & Wash.		To Midwest: Kan. & Iowa		To Midwest: Denver		To Midwest: No., Neb., & Okla.		To North Central: Ill., Ind., Mich. Ohio, & Wis.*		To South Central: Ky., Miss., La., Tenn., & Texas		To Middle Atlantic: Md., D.C., & Va.†		To Middle Atlantic: N.Y., N.J., & Pa.‡		To South Atlantic: N.C., S.C., & Fla.		To New England: Conn. & Vt.§		Totals	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	3,350‖	...	2,133	...	668	...	613	...	2,389	...	1,595	...	1,178	...	5,342	...	820	...	585	...	18,673‖	...
Mapped¶	2,847	85	1,794	84.1	417	62.4	393	64.1	1,571	65.7	1,430	89.6	552	46.8	2,012	37.6	735	89.6	422	72.1	12,547	67.2
At distance from course, mi.																						
<50	1,719	60.4	715	39.9	179	42.9	109	27.7	1,040	66.2	788	55.1	230	41.6	1,301	64.6	505	68.8	341	80.8	7,301‡	58.2‡
50-100	429	15.0	300	16.6	46	11.0	120	30.5	240	15.3	151	10.6	70	12.6	334	16.6	72	9.8	43	10.2	1,805	14.4
100-200	353	12.4	533	29.7	40	9.6	102	25.9	220	14.0	230	16.1	142	25.6	179	9.1	129	17.6	35	8.3	1,963	15.6
200-300	142	5.1	163	9.1	40	9.6	30	7.6	45	2.8	157	10.9	106	19.2	124	6.1	22	2.9	3	0.7	832	6.6
>300	204	7.1	83	4.6	112	26.8	32	8.1	26	1.7	104	7.3	4	1.0	74	3.6	7	0.9	0	...	646	5.2
>300 (total)¶	...	21.1	...	20.5	...	50.0	...	44.0	...	*	...	17.7	...	†	...	‡	...	11.2	...	27.9	...	...

* Enrollments in Chicago do not include those at Cook County Graduate School, which did not submit geographical information.
† Enrollments in Washington, D.C., were not mapped, as they came from the United States as a whole.
‡ Enrollments in New York City were not mapped, as they came from the entire United States and foreign countries.
§ Enrollments in Massachusetts were in Boston and were not mapped as they came from the United States as a whole and other countries.
‖ Includes other than entirely local enrollments.
¶ Enrollments mapped were from a contiguous area, usually involving several states. The difference between total enrollment and mapped enrollment means enrollment from a distance, such as enrollments from Chicago in a New York City course. Where applicable, if these are added to enrollments from more than 300 miles, the indicated percentages would result.
‡ Another 658 enrollments (in Del., Mass., N.Y., and Texas) were strictly local in origin, making 7,807 of 13,053 from less than 50 miles, or 59.7% for nation.

Relation of Medical Schools to Courses

With only one exception, the 11 states having no courses also did not have four-year medical schools, although four states did have two-year schools of the basic medical sciences. Such schools are usually not as active in the continuation education of physicians as are the four-year medical schools.

Without exception, the upper 63% (31 out of 49) of states having the greatest physician enrollment in postgraduate courses somewhere in the country also had one or more four-year medical schools. However, 69 of the 81 four-year medical schools (85%) are located in those 31 states.

Without exception, those states having more than the median number of course subjects (five or more) had one or more four-year medical schools located in those states. In fact, 51 of the 81 four-year medical schools are located in those 24 states. Without exception also, all states having three or more courses in the state had one or more four-year medical schools.

That a medical school in the state does not assure an adequacy of postgraduate courses, though it appears to be an important factor, is shown by the fact that 9 of the 23 states having two or fewer courses had four-year medical schools, and four additional such states had two-year schools of the basic medical sciences. However, only one of the 11 states in which there were zero courses reported had a four-year medical school, although four of those states did have two-year schools of the basic medical sciences in 1956-1957.

Reference has already been made to the relationship of medical schools to the distances from which enrollments are drawn to the courses offered.

The significance of medical school sponsorship in attracting enrollments in postgraduate courses can also be noted by comparing enrollments in two cities in the same state, one with a medical school and one without. Since Iowa has already been mentioned, one might take the case of Iowa City with its medical school as compared to Des Moines not having a medical school. All of the courses in Iowa

City were sponsored by and took place at the medical school. In Des Moines, two courses were reported, one in an auditorium outside of a hospital and the other in a nonschool hospital, though both courses were sponsored by hospitals. Only 29% of the enrollments in Des Moines came from cities from which enrollments did not also go to Iowa City. Or, to put it the other way, 71% of the enrollments to Des Moines came from cities from which physicians also enrolled in the medical school courses in Iowa City. While Des Moines courses drew almost entirely from central Iowa, the courses in Iowa City drew enrollments from throughout the whole state (fig. 1) as well as from eastern Nebraska, Minnesota, Wisconsin, northern Missouri, and Illinois.

TABLE 9.—*Postgraduate Course Enrollments, by State of Origin, Listed According to Rank*

State of Origin	Enrollments, No.	State of Origin	Enrollments, No.
New York	2,739	South Carolina	211*
California	2,702	District of Columbia	197
Texas	1,273	Wisconsin	143
Ohio	1,191	Tennessee	138
New Jersey	1,047	Kentucky	123
Iowa	780	Oklahoma	122
Pennsylvania	729	Louisiana	111
Kansas	688	Rhode Island	87
Illinois	638	Alabama	70
Massachusetts	618	Arkansas	69
Connecticut	601	Georgia	64
Michigan	536	Idaho	64
Missouri	521	Vermont	64
Minnesota	467	New Mexico	63
Nebraska	439	West Virginia	58
Florida	385	Delaware	51
North Carolina	380	Maine	46
Washington	354	Utah	43
Colorado	345	New Hampshire	37
Oregon	329	Wyoming	37
Maryland	267	Montana	36
Indiana	259	Arizona	32
Virginia	258	South Dakota	32
Mississippi	234	North Dakota	23
		Nevada	11
		Total	19,702

* Median number of enrollments.

Another striking comparison of the effect of courses in medical schools and medical centers as compared to courses having other sponsorship or location is the contrast between San Antonio and Houston, Texas, as well as between Temple and Houston, Texas. Considering only the enrollments from outside each city, 86% of the physician enrollments in courses at San Antonio came from cities from which physicians enrolled in courses in Houston. However, only 49% of the Houston enrollments came from cities from which physicians also enrolled in San Antonio courses. Further, while there were only two enrollments of physicians from Houston in San Antonio courses, there were 27 enrollments from San Antonio to Houston courses. There was an identical number of enrollments (162) in each city from physicians in the same city. While all of the Houston courses took place in medical school hospitals, the San Antonio courses were located in nonschool hospitals.

In contrasting Temple with Houston, it is noted that the two courses reported for Temple were located in nonschool hospitals. Only 14% came from places not also contributing enrollments to Houston.

It seems on the basis of information of this kind, together with the extreme mobility of physicians enrolling in postgraduate courses throughout the country, that reconsideration might well be given to the need or desirability of taking courses out to the profession in the form of circuit courses or remote operations by a medical school or postgraduate school. It is obviously more economical of limited faculty time in medical schools for the postgraduate courses to be located at the schools rather than in the hinterlands. It is also more frequently possible for such medical school and medical center courses to use active educational methods in addition to en masse lectures.

On the basis of the present study, it seems clear that physicians enrolling in postgraduate courses are willing to travel far greater distances than had previously been assumed, especially to courses sponsored by and located in medical schools. Therefore, there may not be nearly as great a need as has been thought previously for putting on what are often second-best courses "in the field" in order to reach physicians. It appears that of the practicing profession enrolling in postgraduate courses, many are willing to travel to medical schools over considerable distances even when nonschool courses are available nearby.

TABLE 10.—*Number of Courses per State, According to Rank*

	Courses, No.		Courses, No.
New York	269	Tennessee	3
California	64	Mississippi	2
Texas	44	Missouri	2
Massachusetts	38	South Carolina	2
Kansas	25	Alabama	1
Ohio	23	Delaware	1
Pennsylvania	22	Kentucky	1
Illinois	21	Maine	1
Connecticut	18	Oklahoma	1
Michigan	15	Rhode Island	1
Minnesota	15	Utah	1
District of Columbia	14	Virginia	1
Nebraska	13	Wisconsin	1
Iowa	13	Arizona	0
New Jersey	12	Arkansas	0
Oregon	10	Idaho	0
Vermont	10	Montana	0
Florida	8	Nevada	0
Georgia	8*	New Hampshire	0
Indiana	8	New Mexico	0
Louisiana	7	North Dakota	0
North Carolina	7	South Dakota	0
Colorado	5	West Virginia	0
Washington	5	Wyoming	0
Maryland	3	Total	695

* Median number of courses.

The possibility that circuit and other remote courses serve a stimulating function in arousing the interest of physicians in traveling to schools for additional courses cannot be verified or denied on the basis of this study.

In order that the institutions and organizations who supplied enrollment information may have the full benefit of the information obtained, copies of the maps for their general region of the country will be mailed to each institution and organization active in postgraduate medical education. The publication of all 50 maps in this study is not feasible here.

Subjects of Courses

The 42 categories under which postgraduate courses were listed in 1956 are arrayed across the top of table 5, and the states are arranged regionally along the left, with the number of courses given in the appropriate column intersections. The table thus portrays at a glance the regions of the country generally lacking in many subject categories as well as those relatively completely supplied.

When this kind of tabulation was first contemplated, it was at an early stage of the study before it was realized how much and how far physicians traveled to enroll in postgraduate courses. It was thought that such a tabulation of course subject categories would assist in determining the needs in each state. The preceding data makes it abundantly clear that the table would be better utilized as indicating the subject matter needs in each general region of the country, comprising several states. For that reason, the states are arrayed in the table by regions geographically rather than alphabetically.

Canceled Courses Not Unique

The 226 courses that were canceled in the 1956-1957 year, usually because of lack of enrollment by physicians, were analyzed as to their gross characteristics. It was hoped that clues would emerge from those casualties which would be of assistance in planning in the future. Comparison of the gross characteristics of the 226 canceled courses with the characteristics of the courses actually given showed no significant differences in terms of sponsorship (medical school, nonschool hospital, medical society, etc.), educational methods, location (medical school, non-school hospital, hotel, etc.), kind of course (continuous versus intermittent), and those for whom the courses were designed (general practitioner or full time specialist or both). Thus, the gross characteristics of the courses did not appear to relate to whether or not they attracted sufficient physician attention to be actually given.

TABLE 11.—*Number of Course Subjects, per State, According to Rank*

	Subjects, No.		Subjects, No.
New York	35	Mississippi	2
California	20	Missouri	2
Texas	20	North Carolina	2
Massachusetts	18	South Carolina	2
Kansas	15	Alabama	1
Pennsylvania	14	Delaware	1
Iowa	13	Kentucky	1
Illinois	12	Maine	1
Minnesota	12	Oklahoma	1
Nebraska	12	Rhode Island	1
Ohio	12	Utah	1
Michigan	11	Virginia	1
District of Columbia	10	Wisconsin	1
Connecticut	9	Arizona	0
New Jersey	9	Arkansas	0
Oregon	9	Idaho	0
Indiana	8	Montana	0
Louisiana	7	Nevada	0
Florida	5*	New Hampshire	0
Colorado	4	New Mexico	0
Washington	4	North Dakota	0
Maryland	3	South Dakota	0
Tennessee	3	West Virginia	0
Vermont	3	Wyoming	0
Georgia	2		

* Median number of subjects in states with courses.

Fig. 1.—Map of enrollments in courses at Iowa City. Eleven courses were sponsored by one institution; 519 physicians registered, including 43 from Iowa City.

However, when the location of the canceled courses and their subject matter was compared with the location of courses actually given, the reason for cancelation became evident. In almost all cases, the courses canceled were in regions and on subjects in which other courses occurred. In fact, 191, or 84%, of the canceled courses were in the states ranking highest in the total number of courses given (New York, Massachusetts, Texas, Pennsylvania, and California). It was extremely rare for a course to be canceled if it was on a subject not already covered by other courses in the region. In those exceptional instances it is possible that the conflict was with dates scheduled, although the data in the study was not in such a form as to confirm or deny this assumption.

Table 8 reveals that at least one-fifth of the enrollments in each of the 10 regions were by physicians from a distance of 50 to 200 miles. Indeed, for the country as a whole, of the two-thirds of the enrollments that were mapped, almost one-third came from distances of 50 to 200 miles. In two of the regions, about one-half of the mapped enrollments came from 50 to 200 mile distances, and an additional five regions showed more than one-fourth of the enrollments from that distance. Even more

impressive is the fact that in two of the regions, about half of the enrollments came from distances greater than 300 miles; one region had more than one-fourth its enrollments from distances greater than 300 miles, and an additional three regions had about one-fifth of the enrollments from such distances.

Fig. 2.—Map of enrollments in courses at Buffalo. Thirteen courses were sponsored by one institution; 572 physicians registered, including 55 from Buffalo.

The enrollments to New York City, Boston, and Washington, D. C. were not mapped, as they came from the entire United States and abroad. If the travel to those cities were included as related to postgraduate courses, then the mobility of physicians would be magnified rather than diminished. Without those figures in the travel distance study, it is likely that the tables present more realistic information of travel as it is directly related to continuation education. It is generally recognized that the above three metropolitan centers offer many attractions in addition to postgraduate courses. However, the courses at Denver that were in the study and in the mapping did not occur during the vacation season of June to September, when attractions other than education might be thought as possibly predominant.

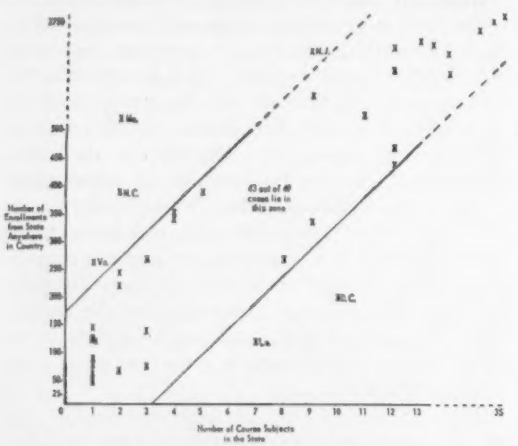
Number of Enrollments from State Anywhere in Country
43 out of 49 cases lie in this zone
Number of Course Subjects in the State

Fig. 3.—Graph showing correlation between number of postgraduate courses in specific region and enrollment of physicians from anywhere in the United States.

Careful study of table 4 also reveals the extreme mobility of large numbers of the enrollments in postgraduate courses. It might be thought that travel over comparatively large distances would involve only courses lasting a week or more. Such is not necessarily the case. The map in figure 1 shows enrollments for Iowa City. In that instance, only one institution is involved, the University of Iowa School of Medicine. Eleven courses were given, of which 10 were one to one and one-half day courses having an average and median duration of seven hours. The other was a four-day 26-hour course. All of the courses included open question periods, patient demonstrations, and audiovisual aids as well as lecture and panel discussion. All of the courses except one were designed for both physicians in general practice and in full-time specialty practice. The other was designed solely for physicians in general and part-time specialty practice.

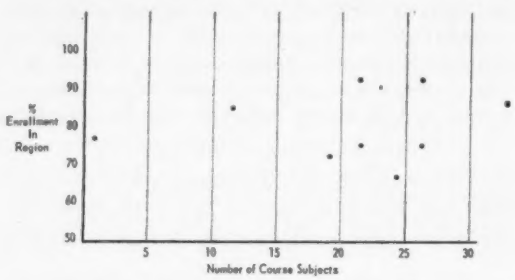

Fig. 4.—Graph showing lack of correlation between number of courses in specific region and enrollments in courses from same region.

Another example showing that the larger travel distances may involve brief rather than lengthy courses is the map (fig. 2) for Buffalo indicating enrollment in the courses offered by the University of Buffalo School of Medicine. Nine continuous courses were reported, each on a different subject area, with one being a one-day 7-hour course, seven being two-day 14-hour courses, and one a six-day 39-hour course. Six of the nine courses included ward rounds in the educational methods, and all used live clinics, patient demonstrations, seminars, open question periods, audiovisual aids, and panel discussions in addition to lectures. The University of Buffalo also scheduled six intermittent courses, three to six hours once a week for 4 to 20 weeks.

Thus, it seems that other factors and probably qualitative ones are more determinative in attracting enrollments from considerable distances than is prolonged duration of the course. This is also reasonable in terms of modern travel times by car, rail, and airplane.

Summary

The geographical origin of 20,432 enrollments in 695 courses given in the year Sept. 1, 1956 to Aug. 31, 1957, was tabulated, mapped, and correlated with geographical location of the courses, subject categories, and kinds of courses. The study comprises 78% of the enrollments and 73% of the courses reported to the Council that year, exclusive of circuit and home-study courses, which were excluded for obvious reasons. In both size of the sampling and characteristics of the courses in the study as compared to all of the courses reported that year, the present study consists of a representative sample from which highly significant conclusions may be drawn.

Physicians' mobility is high in relation to enrollment in postgraduate courses. For the country as a whole, almost one-third of the enrollments came from distances of 50 to 200 miles. Many enrollments were over distances in excess of 300 miles. There is some variation in willingness of physicians to travel that relates to the region from which they originate, with physicians in the eastern seaboard states traveling relatively smaller distances than physicians in the southern, midwestern, and western states. However, in this regard, it appears that the kind of course has greater importance in attracting enrollments from a distance than does the region of the country. It is definitely apparent that in all regions, physicians travel much farther to enroll in postgraduate courses than had previously been assumed. Their actual performance is thus different than is their attitude, as it was reported in the Vollan study.[4]

Medical school courses tend to attract physicians over greater distances than do other courses. There is also a direct relationship between the presence of four-year medical schools in states with the number of courses and course subjects as well as with the enrollments in courses.

There may be in postgraduate medical education a "threshold factor," in terms of number of course subjects in a state or region correlating positively to a high degree with the number of physician enrollments in courses throughout the country. Purely on the basis of such correlation, the threshold of educational stimulus appears to be about four course subjects in a state or region in a year. It is also possible that the correlation per se does not arise from a cause-effect relationship. Certainly the quality of the educational experience is an important factor that must be taken into consideration. Attending only to numbers of course subjects without regard to their educational quality would be a disservice to the profession. It may be that a certain minimum availability of educational experiences of high quality in a region might stimulate physicians to seek other educational activities requiring greater effort, such as travel to a distance.

There is no apparent relationship between the gross characteristics of courses and their likelihood of being canceled because of lack of physician interest. There is a relationship between location and subject categories of canceled courses with the courses given. Conflict of courses in terms of subject and location characterize the courses that were canceled in 1956-1957.

The data and conclusions of this study make apparent the importance of regional and national conceptions in the field of postgraduate courses. It would not be compatible with current reality to confine the planning within each state without regard to the educational opportunities elsewhere in the region and in the nation.

Miss Eileen O'Brien of the Council clerical staff aided in collecting the information secured.

Mr. Charles R. Flowers, Supervisor of the Machine Records Division of the American Medical Association, devised the approach whereby the actual location in each state from which enrollments originated could be punched into the machine cards; he also supervised the extensive machine records services required in this study.

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COUNCIL ON MEDICAL SERVICE

FEDERAL MEDICINE AND THE PRIVATE PATIENT

Louis M. Orr, M.D., Orlando, Fla.

My remarks are based on the policy statements of the House of Delegates of the American Medical Association. We look to the Federal Medical Services Committee for implementation of these policies.

Veterans' medical care and the care of military dependents are specific examples of the federal government's participation in the practice of medicine. However, it would be well to consider here the larger picture, the general impact of these programs on American medicine as a whole, and especially on the private patient.

For the physicians and officials of the armed forces and the Veterans Administration, the area of responsibility is limited. Our area of responsibility is the whole nation, the whole American people, and we would fail in that responsibility if we allowed medical programs for one or two groups to expand unchecked at the expense of the rest of the nation.

We must achieve a balance between the medical care available to those persons who are legitimate responsibilities of the government and to the general public, who are our responsibility. Admittedly the veterans and the military comprise a large group, one out of every seven persons in the United States, but even so this group must not be allowed to become the "tail that wags the dog."

Dependent care in military hospitals began as a service to our men in uniform to supplement private medical care. Now private medical care has become officially secondary to that in the Army, the Navy, the Air Force, and Public Health Service hospitals.

The Veterans Administration hospitals, as you all know, were established to care for service-connected disabilities. Now we have reason to fear that this care is becoming subsidiary to a vast program of medical education and research involving an ever-increasing number of veterans with purely civilian disabilities.

The American physician is the last man on earth to oppose good care for our servicemen's wives, their children, and their parents and for our veterans. American medicine has long demonstrated its belief in the power of medical education and medical research to improve this nation's health. But is this the proper instrument to achieve these worthwhile goals? Is it in the best interests of our collective patient, the American people, to build up these federal research and educational and treatment programs at the expense of the civilian nonfederal medical system?

In July, Dr. Roth, chairman of this conference, and chairman of the Committee on Federal Medical Services of the American Medical Association, in testifying before the House Veterans Affairs Committee said: "Let me assure you that if this were a conflict between the best interests of the patient-public and the vested interests of the medical profession, the profession would inevitably yield to the public as it has on every occasion in the past." In other words, "the patient comes first." Even today when the physician is supported by a vast scientific armamentarium, the science of medicine is as much in the service of the patient as was the art of medicine when our diagnostic equipment was slighter. Is this wholly true in federal medicine?

I do not call into question the professional competence of physicians in the federal service. I know from personal experience that high caliber men are treating the patients in these hospitals. But does not the system under which these men work often present obstacles to giving the patient the best care possible?

For instance, the Medicare program was inaugurated to improve our servicemen's morale. Yet today a serviceman's wife who wishes to be with her husband during pregnancy must use the military facilities if it has the appropriate staff and adequate facilities are available. To choose her own obstetrician she must move away from her husband or pay for her own care.

It does not seem that any of these alternatives will help a soldier's morale very much. One of the most important things during pregnancy to the wife is a close physician-patient relationship. It means much to the expectant mother to know that she is going to be treated by her own personal physician, that she can consult him on any problem

President-elect, American Medical Association.

Read before the Conference on Federal Medical Services at the 12th Clinical Meeting of the American Medical Association, Minneapolis, Dec. 1, 1958.

that arises, that she can call him in the middle of the night in an emergency, real or imaginary, and obtain help.

Can a military hospital staff, by its very nature, provide that sort of personal care? I wonder if the current Medicare regulations do not make it more difficult to provide the best possible care for servicemen's dependents.

Medicare is comparatively new in comparison with the Veterans Administration system. I was chairman of the American Medical Association's Committee on Federal Medical Services before the present policy was established by the House of Delegates in 1953, and I retained that chairmanship until last June. I believe this partially qualifies me to speak as an "old hand" on the problems of veterans' medical care.

The Veterans Administration system as it presently exsists reminds me forcibly of the old adage, "You can't get something for nothing." We all know that—but Americans are incurable optimists and keep hoping that some day one of the big free offers will really come true. We go on collecting trading stamps, even though we know that the cost of the premium is added to the bill.

But does the veteran know what he pays for when he gets his "free" medical care? The man who is treated for service-connected illness or injury knows —and he has already given to this nation more than we can every repay. But how about the veteran who goes into a Veterans Administration facility for treatment of a civilian disability? Does he really think this care is as free as it seems to be?

Of course, he does not have to pay cash directly to the hospital or to the physicians who treat him, as he would in a private hospital—but he pays in other ways. He pays in time by staying in the hospital, away from home, job, friends, and family, a month longer on the average that he would in a private hospital. He pays in taxes for the constantly increasing cost of the Veterans Administration hospital system—more than 715 million dollars for hospital inpatient care alone this current year, not counting outpatient care and research and administrative expenses.

Here are a few choice figures from the midyear review of the 1959 federal budget:

Expenditures for compensation and pensions for veterans are expected to be 134 million dollars higher than in 1958, a total of $3,233,000,000.

The cost of veterans' medical care and hospital construction and modernization is expected to be 93 million dollars higher—a total cost of 911 million dollars, or almost a billion dollars.

More than half of the budget receipts of the federal government will be from individual income taxes. Twenty-two million veterans and their families comprise a sizable slice of the tax-paying population.

This is free care? Everyone here will contribute his share to the 36 billion dollars the Bureau of the Budget expects to collect from the income tax this year, and I think all of us have a legitimate reason to be concerned about where our money goes.

I think we may be especially concerned when even Representative Olin Teague, chairman of the House Veterans Affairs Committee, says, and I am quoting from the official record of the committee hearings of last July:

"In my opinion, when dollars are collected from taxpayers and come to Washington, and we return them to the local communities and States, they have shrunk in value, in almost every instance. I believe Dr. Stacy (of the Oklahoma County Medical Society) is right in saying that, in fact, most of the truly indigent veterans who have non-service-connected illnesses can be taken care of in existing State and private facilities without expense to the Federal government."

As a taxpayer, those words are of great concern to me. I do not see how they justify anything but a return of responsibility for veterans' indigent care to the state and the local communities—despite Congressman Teague's explanation that, as long as the federal hospitals are there, we should use them. That is the argument that started non-service-connected care more than 30 years ago when we had only 9,500 "extra" beds. Now we have more than 80,000 so-called extra beds. As a taxpayer I want to know where this is going to stop!

But I am not talking just as a taxpayer or as a veteran. I am talking as a physician, and about the effect of these programs on my chosen profession. Despite the vastness of the programs and the bills that are running up, I believe that the effect of these plans on American medicine is an even more urgent matter.

I have mentioned the loss in personal relationship between patient and physician in Medicare, which is, I am sorry to say, quite characteristic of most federal medicine. I have also said how and what the veteran is going to pay for his so-called free care, not just in taxes but in the time lost away from his family and from his job.

This loss of choice and these hidden payments would be enough reason for me to advise an individual patient to go to his own physician and his own hospital; in some cases I believe that Veterans Administration patients might even avoid hospitalization altogether through private care. But this is, after all, still a matter for individual decision. Under present laws, the patient can determine whether

he should accept the government care, if a serviceman's dependent or a veteran "unable to pay."

But the community's loss from federal medicine is a matter which must directly concern all physicians. Congressman Teague has said tax dollars shrink when they go to Washington. We most certainly agree. They shrink in a number of ways, and one is that they buy a great deal less hospital care.

Comparing average lengths of stay, a bed in a nonfederal hospital can take care of five times as many patients as one in a Veterans Administration hospital. Comparing costs per case, a Veterans Administration hospital case costs about three times as much as a nonfederal hospital case.

These figures are taken from a detailed analysis of Veterans Administration hospital expenditures published this spring by the Committee on Federal Medical Services, their source being the Veterans Administration's own statistics. They make it difficult to understand how anyone can seriously urge continued Veterans Administration expansion especially while there are still areas in our nation inadequately supplied with hospital beds for the general population.

I cannot quote you similar figures for military hospitals, since the committee has not been able to find a breakdown of their operating costs which would allow a really accurate cost comparison with nonfederal institutions. However, it is obvious that these shrunken tax funds could be used more sensibly and profitably—in their unshrunken form—to provide more local health facilities for the entire population.

It is not just the waste of money or the competition for the tax dollar which is disturbing. We are also very seriously concerned about the competition for staff personnel. You have already heard this morning some discussion of the disproportionate share of internships and residencies in federal hospitals. This can have a number of interlocking results, all disturbing to the private physician. It can lead, and to a certain extent has already led, to a demand for greater variety in the federal case load, meaning more non-service-connected cases in the Veterans Administration and more dependents in the military hospitals. It can lead to greater federal control of our medical schools, not through a purposeful campaign but by default, as the private teaching hospitals drop internships and residencies, because of an inability to compete with the inducements offered by the government with our tax dollars. It can lead to a large group of physicians in this country whose total hospital experience during the educational process, from clinical clerkship to completion of residency training, has been under federal control.

These men will have little or no understanding of the private practice relationship between the individual physician and the individual patient, because their entire career will have been as salaried employees of the federal government.

It is not good for such a large segment of the American medical profession to be diverted from what has been in the past the main current of American medicine. It certainly is not good for those private hospitals which are unable to compete for interns and residents because they must meet their costs from income rather than from congressional appropriations. Some will be forced to reduce the services they can offer their patients. Some will be forced to employ full-time staff to replace the interns and residents they cannot obtain, with a consequent increase in the hospital bill. That bill is further raised because the federal government pays more than the prevailing wage for nurses in almost every section of the country.

As a result, the patient finds his hospital costs going up and his taxes going up, and fails to realize that the way in which those taxes are being spent is one of the very factors that pushes his bill higher. This would be almost ludicrous if it were not so nearly tragic in its possible consequences for our American medical system.

This question of hospital costs can be very irritating for a physician, since it is common practice to blame the medical profession for any increase in the cost of medical care, whether it comes in the form of hospital rates, prescription costs, or even insurance premiums. But I am even more concerned when this artificial forced increase and this artificial scarcity of professional personnel for nonfederal hospitals makes adequate hospital care more difficult for the civilian population to obtain.

John Donne's phrase about no man being an island "entire of itself" has possibly become overfamiliar in recent years, but like many familiar phrases, it is used so frequently because it is so true. It applies equally well in this area.

There is a definite interrelation between private and federal medicine. The legislators and administrators cannot make federal medicine an island, having no effect on medical practice in the rest of the United States.

We want the best possible federal medical program for those who are legitimate federal responsibilities—our servicemen, the veterans who suffered actual war damage, the American Indians who are still federal wards—but we must not allow the whole private practice of medicine to be vitiated by a vast overemphasis on military and veterans' hospitals.

It has been a pleasure to have this opportunity of telling you the reasons why these trends disturb me. I sincerely hope this conference will be a step toward the proper integration of federal medicine in the total American medical picture.

MEDICAL NEWS

ALABAMA

State Medical Education.—At the 98th annual session of The Medical Association of the State of Alabama the following officers were installed: president, Dr. William R. Carter, Repton; president-elect, Dr. Hugh E. Gray, Anniston; vice-president, Southeastern Division, Dr. James A. Brantley, Troy; state board of censors for five-year terms, Dr. Wilmot S. Littlejohn, Birmingham, succeeded himself and Dr. Grady O. Segrest, Mobile, succeeded himself.

CALIFORNIA

Annual Symposium in Long Beach.—The second annual symposium to be held in conjunction with the formal opening of the new 400-bed Memorial Hospital of Long Beach will have the theme "New Horizons in Medicine" and will be held Dec. 2 in the new hospital. For information, write Dr. George X. Trimble, Director of Medical Education, Seaside Memorial Hospital, 1401 Chestnut Ave., Long Beach 13, Calif.

Personal.—Dr. Andrew D. Hunt Jr., of Flemington, N. J., will head the outpatient clinics of the now-building, 22-million-dollar Palo Alto–Stanford Hospital Center. He will be director of ambulant services as well as associate professor of pediatrics at Stanford Medical School. Both appointments are effective April 1.—Dr. John H. Lawrence, professor and director of the Donner Laboratory of Medical Physics, University of California, Berkeley, was the guest of the Japanese Medical Congress in Tokyo during the first two weeks of April, where he gave two papers.

ILLINOIS

State Surgical Meeting.—The Illinois Surgical Society will conduct its annual clinical and scientific meeting in Chicago, May 18, at Cook County Hospital and the University Club. Dr. William Johnson, president of the society, is chairman of the surgical symposium. A total of 23 surgical clinics are planned. The evening of May 18, Dr. Willis J. Potts, Chicago, will present "Respiratory Emergencies and Complications in Pediatric Surgery." The Iowa Academy of Surgery will be guests at this meeting. Members of the medical profession are invited to all sessions. For information write the Illinois Surgical Society, Inc., Suite 1421, 122 S. Michigan Ave., Chicago 3.

Annual Meeting in Chicago.—The Illinois State Medical Society will hold its 119th annual meeting in the Hotel Sherman, Chicago, May 18-22. Scientific programs, presented on May 19-22, will consist of general assemblies, panels, and sectional meetings covering allergy, anesthesiology, cardiovascular disease, dermatology, EENT, medicine, obstetrics and gynecology, pathology, pediatrics, preventive medicine and public health, radiology, and surgery. The invited out-of-state speakers and their subjects will be:

Current Concepts on Anesthesia in the Aged, Dr. Henry K. Beecher, Boston.

Roentgen Diagnosis of Benign Gastric Ulcer, Dr. Harold O. Peterson, Minneapolis.

Some Comments on Treatment of Congestive Heart Failure, Dr. Robert O. Brandenberg, Rochester, Minn.

Indications for Surgery in the Middle Ear Deafness, Dr. Bruce Proctor, Detroit.

Sodium, Hypertension, and Primary Aldosteronism (Oration in Medicine), Dr. Jerome W. Conn, Ann Arbor, Mich.

Changing Concepts in the Use of Antibiotics in the Treatment of Surgical Infections (Oration in Surgery), Dr. Frank L. Meleney, Miami.

A Review of the 1958 Poliomyelitis Epidemic in Detroit, Dr. Joseph G. Molner, Detroit.

Vascular Complications in Pregnancy, Dr. Eugene A. Osius, Detroit.

Problems in Learning from Clinical Experiences, Dr. Eugene A. Stead, Durham, N. C.

A Critical Reevaluation of Nutritional Requirements in Growth and Development, Dr. Charles U. Lowe, Buffalo.

Recent Developments in the Etiology of Bronchial Asthma, Dr. Samuel C. Bukantz, Denver.

Cellular Diagnosis of Adenocarcinoma of the Female Genital Tract, Dr. James W. Reagan, Cleveland.

Systemic Therapy of Superficial Fungus Infections, Dr. Harvey Blank, Miami.

Dr. Raleigh C. Oldfield, of Oak Park, will give his presidential address at the Wednesday general assembly. The annual banquet will be hold on that night. For information, write Dr. Harold M. Camp, Secretary, Illinois State Medical Society, Monmouth, Ill.

Chicago

Dermatological Lecture.—The ninth Arthur William Stillians Lecture of the Metropolitan Dermatological Society of Chicago will be given at its annual meeting, May 13, by Dr. Milton E. Kurth, staff, Cook County Hospital and the University of Illinois, on plastic surgery in dermatology.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

Annual Lecture.—The annual D. J. Davis Memorial Lecture on Medical History was given April 22 by Dr. Lloyd G. Stevenson, professor of the history of medicine, and dean of the Faculty of Medicine, McGill University, Montreal, P. Q., Canada, on "The Early Development of Internal Medicine in the United States."

Research Institute Elects Board Members.—At the annual meeting of the board of directors of the Hektoen Institute for Medical Research of Cook County Hospital March 26 the following were elected as members of the board: Mr. Arthur S. Bowes, Dr. Lowell T. Coggeshall, and Commissioner John J. Duffy.

Dr. Rostenberg Named Department Head.—Dr. Adolph Rostenberg Jr., professor and acting head of the department of dermatology, University of Illinois College of Medicine, was appointed professor and head of the department on April 14 by the board of trustees. The appointment, effective May 1, fills the vacancy created last September by the resignation of Dr. Marcus R. Caro. Dr. Rostenberg has been on the staff of the university since 1945, when he was appointed professor of dermatology.

Symposium on Steroid Therapy.—The Chicago Medical School will sponsor a symposium on Steroid Therapy to be held at the Drake Hotel, Chicago, May 15-16, with Dr. Edward F. Rosenberg as general chairman. Dr. John J. Sheinin, president, Chicago Medical School, will open the meeting with an address. Eleven papers are scheduled to be presented, and the program will conclude with a panel discussion on "Steroid Therapy in Medicine." There is no registration fee. For information, write Dr. Rosenberg at 109 N. Wabash Ave., Chicago 2.

MARYLAND

Resolution on Tetanus Immunization.—At a recent meeting, the Baltimore City Medical Society passed a resolution dealing with mass tetanus toxoid immunization, reading, in part, as follows:

WHEREAS, there has been an increase in all age groups in the incidence of trauma and . . . the major portion of our population has not been actively immunized against tetanus, even though such protection has been afforded to all former armed service personnel and most children since 1940, and

WHEREAS, the rate of temporary disability due to reactions to TETANUS ANTITOXIN administration is high despite all precautions, and permanent disability and even death do occur following the use of TETANUS ANTITOXIN, and

WHEREAS, in . . . a sudden emergency . . . it would be well nigh impossible to adequately test large numbers of casualties for sensitivity to foreign protein, and

WHEREAS, the above-mentioned complications . . . constitute a public health problem in this State, even though the incidence of tetanus as a disease is low; therefore be it

RESOLVED, that the Baltimore City Medical Society go on record as favoring the accomplishment of universal, active immunization of the population, preferably by the administration of toxoid by the family physician, and further be it

RESOLVED, that the Baltimore City Medical Society request the Baltimore City Health Department to help publicize the importance of this problem and to undertake the active immunization of the indigent, who are now cared for under the Medical Care program . . .

MASSACHUSETTS

Dr. Schall Honored.—Dr. LeRoy A. Schall, retiring Walter Augustus Le Compte Professor of Otology and professor of laryngology at Harvard Medical School, Boston, was the presiding officer at a two-day scientific session held recently in his honor by the Massachusetts Eye and Ear Infirmary, an affiliated part of the Massachusetts General Hospital. Dr. Schall had designated a number of his "outstanding students" at Harvard from the past 25 years to participate in the program. Out-of-town speakers included Dr. Julio Quevedo from Guatemala; Dr. John J. Shea from Memphis, Tenn.; Dr. Clair M. Kos, University of Iowa; Dr. Richard Thomas Barton, Los Angeles; Dr. J. H. Thomas Rambo, of New York City; and Dr. Norman Jesberg, Los Angeles.

Laboratory to Study Hearing Physiology.—A laboratory for studing the physiology of hearing has been established by the Massachusetts Eye and Ear Infirmary and the Massachusetts Institute of Technology, Boston. Doctors, neurophysiologists, and electrical engineers will work together in a program of research, treatment, and education. The new laboratory, which is sound-proof and vibration-proof, was built and equipped at a cost of $200,000 and will be operated under grants from the National Institutes of Health. Located at the infirmary, it is known as the Eaton–Peabody Laboratory of Auditory Physiology. Work in the laboratory is under the direction of Dr. LeRoy A. Schall, chief of otolaryngology for the infirmary and Le Compte Professor of Otology at the Harvard Medical School, and Walter A. Rosenblith, professor of communications biophysics at M. I. T. The research is under the direct supervision of Dr. John W. Irwin, director of the Microcirculatory Laboratory at the infirmary, and Nelson Yuan Sheng Kiang, neurophysiologist at M. I. T.'s Research Laboratory of Electronics.

MICHIGAN

Wayne Alumni Reunion.—Date of the 91st alumni reunion and clinic day for 2,500 graduates of Wayne State University College of Medicine, Detroit, has been set for Wednesday, May 13, according to Dr. Theodore I. Bergman, '32, president of the association. The one-day scientific meeting, climaxed by a reception and dinner dance, will be held at the Fort Shelby Hotel in Detroit.

Plan Mental Health Projects.—In recognition of the World Mental Health Day, April 7, the department of psychiatry, Wayne State University College of Medicine, Detroit, designated special research and development projects to be advanced in 1960 (World Mental Health Year) in harmony with the resolution of the World Federation Organization of Mental Health, a United Nations Agency. Dr. John M. Dorsey, chairman of the department, named the following projects selected by the staff for special emphasis: (1) the problem of child care and the psychological aspects of education as well as the psychiatric education of medical students; (2) the mental health of the college student; (3) problems of convalescence, vocational rehabilitation, and the psychological aspects of industrial medicine; (4) problems of migration and the migratory worker; (5) problems of addiction, including alcoholism and the industrial aspects of it; and (6) problems of depression and suicide, with special reference to the rescue fantasy.

NEW JERSEY

Spring Symposium on Diabetes.—The New Jersey Diabetes Association in cooperation with the New Jersey State Department of Health will present a spring symposium on "Neurovascular Complications of Diabetes Mellitus" at St. Peter's General Hospital, New Brunswick, May 13. The following papers are scheduled:

Trophic and Ulcerative Lesions of the Lower Extremities in Diabetes, Dr. Norman Rosenberg, New Brunswick.

Diabetic Triopathy-Retinopathy, Nephropathy and Neuropathy, Dr. Robert F. Bradley, Boston.

Diabetic Neuropathy Involving the Autonomic and Parasympathetic Nervous Systems, Dr. Charles Shuman, Philadelphia.

Central Nervous System Complications of Diabetes Mellitus, Dr. Sherman Gilpin, Philadelphia.

A panel discussion moderated by Dr. William Levison will conclude the meeting. For information, write Dr. Arthur Krosnick, State of New Jersey Department of Health, Trenton 7, N. J.

NEW YORK

Dr. Thomas to Come to Albany.—Dr. Wilbur A. Thomas, associate professor of pathology, Washington University School of Medicine, St. Louis, has been named professor of pathology and chairman of the department at Albany Medical College and pathologist-in-chief at Albany Hospital, effective July 1. He will succeed Dr. Arthur W. Wright, department chairman for 25 years. Dr. Wright, who reaches the administrative retirement age this year, will continue as professor of pathology. Dr. Thomas was named instructor in pathology at Washington University in 1953, was elected a diplomate of the American Board of Pathology in the following year, and became associate professor in 1957. From September, 1957, to March last year, Dr. Thomas served as visiting professor and acting head of the department of pathology at the University of Baghdad, under a Fulbright fellowship.

Annual Convention in Buffalo.—The 153rd annual convention of the Medical Society of the State of New York will be held May 9-15 at the Hotel Statler-Hilton, Buffalo. Section meetings will be held during the mornings with general sessions in the afternoons, including the following symposiums and panel discussions:

Hypnosis in Clinical Practice, moderated by Dr. Hyman S. Barahal, West Brentwood.

Management of Patients Requiring Operation, Dr. Irving Pallin, Brooklyn.

Advances in Pulmonary Diagnosis and Treatment, Dr. Arthur Q. Penta, Schenectady.

Surgery in Cardiovascular Disease: Indications and Results, Dr. Francis W. O'Donnell, Buffalo.

Present Status of Oral Hypoglycemic Agents, Dr. Grosvenor W. Bissell, Buffalo.

Prognosis in Surgically Treated Cancer, Dr. Harry W. Hale Jr., Buffalo.

Control of Infectious Hazards in Home and Hospital, Dr. Morris Greenberg, New York.

Role of the General Hospital in the Care of Special Medical Problems, Dr. William A. Kelly, Mount Vernon.

The A. Walter Suiter Lecture, "Recent Progress in Our Understanding of Bilirubin Metabolism and Jaundice," will be given by Dr. Irwin M. Arias, Bronx. The history of medicine section will hold a symposium open to the public on "History of Microscopy—1590 to the Present" the morning of May 15. Speaker at the May 11 reception will be Dr. Gunnar Gundersen, LaCrosse, Wis., President, American Medical Association. Exhibits and films are planned. For information write the Medical Society of the State of New York, 750 Third Avenue, New York 17.

New York City

South African Visitor.—Dr. John Fleming Block, Cape Town, a former Rhodes Scholar and medical research fellow at Harvard, presented a lecture on "Human Nutrition and its Growing Importance to Clinical and Investigational Medicine" at the Cornell Medical College, April 15, as part of the Squibb Centennial Lecture series.

Lay Teachers Take Orthopedic Training.—Forty-five New York City school teachers are "going to school" at the Hospital for Joint Diseases, 123rd Street and Madison Avenue, to learn how to detect bone and joint ailments among their pupils and how to handle handicapped youngsters in their classrooms. The course, on the graduate level, began Feb. 17 and ends June 2. It consists of a series of 15 hour-and-40-minute lectures, discussions, and film showings by physicians, social workers, reha-

bilitation counselors, school guidance counselors, visiting nurses, and educators. These are held every Tuesday at 3:45 p. m. at the hospital. Ailments to which children in the growth years are subject are demonstrated to the teachers by physicians on the hospital's staff. The course is sponsored jointly by the Board of Education's Bureau for the Education of the Physically Handicapped, Play Schools Association, and the Visiting Nurse Service. The purpose of the course is to facilitate the early detection of orthopedic ailments. It is being directed and coordinated by Dr. Barnard Kleiger, attending orthopedic surgeon at the Hospital for Joint Diseases.

OHIO

History of Medicine Meeting.—The Cleveland meeting of the American Association of the History of Medicine will be held May 21-23 and will deal with aspects of medical history, from vaccination to surgical pathology in the Renaissance. On May 22 a "Symposium on the Heart" will include Drs. Carl J. Wiggers, Victor A. McKusick, Harold Feil, and George H. A. Clowes, Jr. A round-table discussion commemorating the centennial of Charles Darwin's "Origin of Species" will be held May 23. The annual dinner will take place the evening of May 22. All meetings will be held at the Cleveland Medical Library, and interested persons are invited. Local Chairman is Dr. Bruno Gebhard, Cleveland Health Museum, 8911 Euclid Ave., Cleveland 6.

OREGON

Cancer Conference in Portland.—An Oregon Cancer Conference will be held July 16-17 in Portland under the joint sponsorship of the Oregon State Medical Society, the Oregon Division of the American Cancer Society, and the University of Oregon Medical School. The conference is planned as a special feature of the Oregon Centennial celebration. The guest speakers will include Dr. Arthur C. Allen, professor of pathology, and Dr. Ralph Jones Jr., professor of medicine, University of Miami School of Medicine, Coral Gables, Fla.; Dr. Gilbert H. Fletcher, Houston, Texas, radiologist, Tumor Institute of the M.D. Anderson Hospital; Dr. Leslie M. Smith, dermatologist, El Paso, Texas; Dr. Francis Bayard Carter, professor of obstetrics and gynecology, Duke University School of Medicine; Dr. Gilbert Dalldorf, Albany, N. Y., director, Medical and Scientific Research Department, National Foundation; and Dr. John E. Dunphy, Portland, professor of surgery, University of Oregon Medical School. Each guest speaker will participate in one or more panel discussions. The program is being developed under the direction of the Committee on Cancer, Oregon State Medical Society, with Dr. Martin A. Howard, Portland, chairman. All sessions will be held in the library auditorium at the University of Oregon Medical School. The banquet the evening of July 16 will be held at the Hotel Multnomah. For information and reservation forms, write Mr. Roscoe K. Miller, Executive Secretary, Oregon State Medical Society, 1115 S. W. Taylor St., Portland 5, Ore.

PENNSYLVANIA

Ophthalmology-Otolaryngology Meeting.—Governor David L. Lawrence of Pennsylvania will be the honor guest at the annual meeting of the Pennsylvania Academy of Ophthalmology and Otolaryngology at the Bedford Springs Hotel, Bedford, May 21-23, with Dr. Murray F. McCaslin, Pittsburgh, presiding. Sixteen speakers will hold scientific sessions and instructional courses in ophthalmology and twenty-four speakers will participate in scientific discussions and study clubs concerning problems and progress in otolaryngology. On Thursday, May 21, a special highlight of the meeting will be a symposium on medical economics. Following this, the otolaryngologists will discuss the otologist and the dispensing of hearing aids. Members of the Medical Society of the State of Pennsylvania and their wives are cordially invited. For information, write Dr. Benjamin F. Souders, 424 Walnut St., Reading, Pa.

RHODE ISLAND

Annual Meeting in Providence.—The Rhode Island Medical Society will hold its annual meeting May 12-13 in Providence. The Chapin Oration will be given by Dr. John R. Paul, New Haven, Conn., on "Chapin and Modern Epidemiology." The program includes the following papers:

The Value and Limitations of Liver Function Tests, Dr. Franklin M. Hanger, New York City.

The Rhode Island Women's State Cytology Program: Progress Report, Dr. Yo Seup Song, Providence.

Medical Aspects of Iatrogenic Disease, Dr. Anthony P. Caputi, Newport.

Viral Infections of the Respiratory Tract, Dr. Harry M. Rose, New York City.

Indications and Results of Inferior Vena Caval Ligation in the Treatment of Thromboembolic Disease, Dr. John B. Blalock, New Orleans.

Visual Problems in Roentgen Diagnosis, Dr. William J. Tuddenham, Philadelphia.

Bronchogenic Carcinoma: Predisposing Causes, Dr. Alton Ochsner, New Orleans.

A panel discussion on "Deafness" is planned for the morning of May 13. Dr. Francis B. Sargent will present the presidential address on "Our Allies, the Hospitals and Blue Plans; Assets or Liabilities?" The meeting will conclude with a dinner at which Dr. F. J. L. Blasingame, Executive Vice-President, A. M. A., will present "Reorganization of the American Medical Association." For information write the Rhode Island Medical Society, 106 Francis St., Providence 3.

TENNESSEE

Dr. Rogers Receives Pathology Award.—"For basic research on how tumors and cancers behave and grow," Dr. Stanfield Rogers, director of Memorial Research Center of the University of Tennessee, Knoxville, received the third annual award of the American Society for Experimental Pathology, April 15. The award, and a $1,000 honorarium contributed by Parke, Davis & Company, honors original research by pathologists under 40 years old. Dr. Rogers' experiments began in 1947 at the Rockefeller Institute for Medical Research, New York City, and were continued at Duke University, Durham, N. C.

UTAH

Surgical Meeting in Ogden.—On May 20-22, the Ogden Surgical Society will hold a meeting under the presidency of Dr. Noall Z. Tanner. The program includes a panel discussion on "Pancreatitis" and meetings of specialty groups. The following are listed as participants:

Drs. John H. Mulholland and Mather Cleveland, New York City; George S. Sharp, Pasadena, Calif.; Hamish W. McIntosh, Vancouver, B. C.; Rodney H. Maingot, London, England; Everett G. Grantham, Louisville, Ky.; Donald W. deCarle, San Francisco; James T. Priestley, Rochester, Minn.; J. Hartwell Harrison, Boston; Stewart G. Wolf, Oklahoma City; Clifford G. Grulee, Evanston, Ill.; Nathan J. Smith, Daniel G. Morton, and Howard P. House, Los Angeles; R. Adams Cowley, Baltimore; and Alton Ochsner, New Orleans.

Luncheon discussions and a ladies' luncheon are planned. For information write Dr. L. D. Nelson, Washington Terrace, Ogden, Utah.

VIRGINIA

David C. Wilson Lecture.—On May 14, Dr. William Malamud, president, American Psychiatric Association, and research director of the National Association for Mental Health, will present the first David C. Wilson Lecture in Psychiatry at the University of Virginia School of Medicine, Charlottesville. This is the first of a series of lectures established at the university in honor of Dr. Wilson, who was chairman of the department of neurology and psychiatry for 26 years and has been professor of neurology and psychiatry for 30 years. Upon his retirement as chairman in 1956, the David C. Wilson Society was established, and this lecture is sponsored by the society with assistance of a grant from the Mona Bronfman Sheckman Foundation.

Roanoke Hospital Wins Safety Award.—Roanoke Memorial Hospital, Roanoke, was announced as the "grand award winner" of the 1958 Hospital Safety Contest, co-sponsored by the American Hospital Association and the National Safety Council. The contest was judged on the basis of the lowest number of injuries among employees of individual hospitals in relation to the number of man-hours worked during the year-long contest. The 280 hospitals which completed the contest reported a total of 367,075,000 man-hours worked during 1958, with a total of 3,042 injuries incurred resulting in at least one day lost from work. The contest is designed to encourage the observance of safety practices among hospital employees. Roanoke Memorial Hospital, with 530 employees, operated 1,168,346 man-hours last year without a reportable injury to win the grand award.

WASHINGTON

Allergy Meeting in Richland.—The Washington State Allergy Society will hold its spring meeting May 16 at the Desert Inn Hotel, Richland. The following papers are scheduled:

Pollens of the Northwest and Their Control, Dr. James E. Stroh, Seattle, and Ted W. Galbraith, B.S., Pasco.
Meteorology and Aero-Allergens, Glenn R. Hilst, Ph.D., Richland.
The Removal of Aero-Allergens, Don Wisehart, B.S., Richland.
Atmospheric Physics and Factors Which Influence Allergic Individuals, Dr. Konrad J. K. Buettner, Seattle.
Air Ion Density and Its Relation to Allergic Conditions, Dr. A. G. Corrado, Richland, and J. C. Beckett, San Francisco, Calif.
Industrial Allergy, Dr. Sherman M. Williamson, Seattle.

At the noon luncheon Mr. Daggett W. Norwood, of Richland, will present "Miracle of the Atom." A business meeting will conclude the formal program. Dr. Stroh is president of the society and Dr. Herbert L. Cahn, Richland, is the secretary.

Cancer Symposium on Spokane.—On May 25-26 a Cancer Symposium will be held at the Davenport Hotel, Spokane, sponsored by the Spokane County Unit, American Cancer Society. The program will open with an address by Dr. Clarence Lyon, president, Spokane County Medical Society, followed by an address by Dr. Alton Ochsner, New Orleans, on "New and Practical Approaches to Chemotherapy of Cancer." Four panel discussions are planned with the following moderators:

How to Treat Primary Cancer of the Breast, Dr. G. Edward Schnug, Spokane.
The Spread of Cancer During Surgery and Chemotherapy in Cancer, Dr. John Sonneland, Spokane.
Recent Changes in Diagnosis and Treatment of Lung Cancer, Dr. Waverly Ellsworth, Spokane.
Colonic Polyps, Cancer and Treatment, Dr. Carl Schlicke, Spokane.

Two films are planned and breakfast, dinner, and luncheon programs are arranged. Participants include the following: Drs. Warren Cole, Chicago; L. Henry Garland, San Francisco; George Moore, Buffalo; W. Bradford Patterson, Boston; Jerome Urban, New York City; and David Wood, San Francisco. For information write Dr. John Sonneland, Doctors' Building, 104 W. Fifth Ave., Spokane 4, Washington, General Chairman.

GENERAL

Information Exchange for Ophthalmologic Research.—The National Committee for Research in Ophthalmology and Blindness, 406-C South Boulevard, Evanston, Ill., established a confidential information exchange for groups seeking scientists, physicians, or technical personnel interested in research in ophthalmology and blindness. Institutions or individuals interested may secure information from the committee office.

Certification in Child Psychiatry.—The American Board of Psychiatry and Neurology, Inc., announced that it is undertaking subspecialty certification in child psychiatry for those child psychiatrists meeting the required standards. Information may be obtained by writing Dr. David A. Boyd Jr., Secretary-Treasurer, American Board of Psychiatry and Neurology, Inc., 102-110 Second Ave., S. W., Rochester, Minn.

Grants for Blood Research.—The Hematology Research Foundation invites applications for grants-in-aid for hematologic research for a period of one year. Applications must be submitted no later than June 25 to Hematology Research Foundation, 64 W. Randolph St., Chicago 1. Nine copies of application are requested (application forms are available upon request). Awards will be announced by the medical advisory board, which will choose the applicants on the basis of the proposed research project.

Health Council Membership Increases.—The executive committee of the National Health Council reestablished the membership of the American Hospital Association in the council. The action followed a meeting of the board of trustees of the American Hospital Association in Chicago, when it was voted to have the association reaffiliate with the council. The move brought to 65 the membership of the council, which was established in 1921, and is composed of national organizations concerned with health improvement. Other recent additions to the membership of the council include the American Medical Association, and the American College of Preventive Medicine.

Request for Civil War Data.—Dr. Morgan B. Raiford, Ponce de Leon Infirmary, 679 Juniper St., N. E., Atlanta 8, Ga., announced that "1961 will be the centennial year of the formation of the medical services, both of the Confederate and Union Forces. The Atlanta Historical Society and the Civil War Round Table have been given funds to establish an exhibit on medical services of the Confederate Armies for the centennial period [and] to collect as much informative data regarding this era of medicine as possible . . ." Anyone having information, items of interest, or photographs (to lend) of interesting correspondence and medical equipment should write to Dr. Raiford at the above address.

Catholic Hospital Convention in St. Louis.—The 44th annual convention of the Catholic Hospital Association of the U. S. and Canada will be held at Kiel Auditorium, St. Louis, June 1-4, with "Management: A Sacred Trust" as the theme. Preconvention meetings will be held May 30-31. Speakers from the health and hospital fields and industry will be featured during the convention. Rev. John J. Flanagan, S.J., executive director of the association, said the entire program has been designed for all hospital personnel who have supervisory responsibilities. "It will develop basic general principles of management applicable to all departments in the hospital," he said. For information, write the Catholic Hospital Association, 1438 S. Grand Blvd., St. Louis 4.

New Journal on Research of Lipids.—The first issue of the *Journal of Lipid Research* will be that of September, 1959. Donald B. Zilversmit, Ph.D., is editor, and Drs. Joseph H. Bragdon and Jules Hirsch are associate editors. Corresponding editors include specialists from Canada, Sweden, France, Germany, England, Belgium, Israel, and Japan. The journal, a quarterly, will publish original articles dealing with the chemistry, biochemistry, enzymology, histochemistry, and physiology of the lipids and will contain review articles and a listing of new lipid methods published in other journals. Copies of "Instructions to Authors" may be obtained by writing to the editor at the Editorial Office, University of Tennessee, Memphis, Tenn. Subscription price is $6 per year.

Report on Longevity.—Average length of life of America's wage earners increased slightly in 1958 after showing a small decrease the preceding year, statisticians of the Metropolitan Life Insurance Company report. According to provisional mortality figures for 1958, the average length of life (expectation of life at birth) for the Metropolitan's millions of industrial policyholders was 70.2 years, an increase of 0.2 years over the figure for 1957. The average length of life of these insured persons has increased three years in the past decade, and more than eight years since 1938. "In 1909, the expectation of life at birth among the insured persons was about six years less than that for the population as a whole; at present the two are on a par," the statisticians note.

Surgeons Form Trauma Section.—The United States Section, International College of Surgeons, has formed the Section on Surgery of Trauma as a successor to the Section on Occupational Surgery. Dr. Chester C. Guy, clinical associate professor of surgery at the University of Illinois College of

Medicine, Chicago, is chairman of the section and Dr. N. Gillmor Long, Evanston, is co-chairman and secretary. The Section on Surgery of Trauma will provide a forum for those surgeons whose work is limited to traumatic lesions and for those who treat lesions frequently in their daily practice. The section "will deal with developments in the treatments of specific injuries, consider programs for the prevention of injuries, conduct studies on basic physiologic and pathologic changes in the injured person, and give thought to allied subjects."

Institute to Study Gravitational Strain.—The Institute for Gravitational Strain Pathology, Inc., a new research institute, studies the specific and general ill effects of gravitation on man. The institute represents a scientific, educational, nonprofit organization, incorporated in the State of New York, and is supported by philanthropic funds. Clinical experimentation is carried out by means of a special tool ("antigravitation leverage technique") designed to modify the pathogenic thrust of gravity on the living human being. Involved are the pathology of man's upright posture, human energetics, the processes of stress and strain, and of chronic fatigue. The present topic of the investigations is the "low-back problem." Reports on the institute's work will be published. For information write Dr. Martin Jungmann, Director, Institute for Gravitational Strain Pathology, 1384 Third Ave., New York 21.

Grants for Treatment and Research.—The National Foundation has announced treatment and research grants amounting to almost one million dollars in March of Dimes funds and including studies related to the problems of arthritis and birth defects. The National Foundation has expanded its program beyond polio to include viruses in general, disorders of the central nervous system, arthritis, and birth defects. Nine of the awards announced are for support of polio rehabilitation centers, part of a country-wide network of 15 March of Dimes-sponsored centers devoted to treatment of the after-effects of polio. One grant was made in support of work at the Edward Daniels Faulkner Arthritis Clinic of the Presbyterian Hospital, New York City. The newly announced grants bring 1959 authorizations to a total of $4,030,045 in March of Dimes funds.

Prizes for Unpublished Monographs.—The American Academy of Arts and Sciences announced three prizes of $1,000 each to be awarded annually to the authors of "especially meritorious unpublished monographs" one each in the humanities, social sciences, and physical and biological sciences. A monograph is defined for the purposes of these awards as a "scholarly contribution to knowledge, too long for an article in a learned journal and too specialized or too short for a general book. Recipients of these prizes will be expected to make their own arrangements for publication. The final date in 1959 for receipt of manuscripts by the committee on awards is Oct. 1. Announcement of the awards will be made in December. Details may be secured on request from the Committee on Monograph Prizes, American Academy of Arts and Sciences, 280 Newton St., Brookline Station, Boston 46.

Committee on Research for National Foundation.—Fourteen U. S. scientists have been named to guide the expanded medical and scientific research program of The National Foundation as it begins its work on arthritis, birth defects, central nervous system disorders, and virus diseases in general. Headed by the president of the University of Southern California, Dr. Norman H. Topping, a new medical advisory Committee on Research to pass on all grants for research projects supported by March of Dimes funds was announced by Basil O'Connor, president of the foundation. The new committee replaces the former Committee on Virus Research and Epidemiology, which had eight members. It includes experts in the fields of arthritis, congenital malformations, virology, biochemistry, bacteriology, genetics, and immunology. Dr. Thomas B. Turner, dean of the Medical Faculty, Johns Hopkins University, Baltimore, is vice-chairman of the committee.

Centennial for Dental Association.—"A century of health service" will be evaluated in a special centennial issue of *The Journal of the American Dental Association* to be published in June. Many authorities have contributed to the 256-page number commemorating the 100th anniversary of the association. Congratulatory messages, ranging from those from President Eisenhower, the U. S. Congress, and Secretary Flemming of the Department of Health, Education, and Welfare to the presidents of such groups as the American Medical Association, American Hospital Association, American Bar Association, World Health Organization, American Public Health Association, American Pharmaceutical Association, National Dairy Council, and the American Public Welfare Association will be included. The publication will also contain a number of historical pictures indicating highlights in organized dentistry's growth as well as pictures showing activities in which the profession is engaged today.

Arrangements, Transportation for World Meetings.—Dr. Louis H. Bauer, secretary-general, World Medical Association, has announced that the association has made initial arrangements for providing its participants at the Second World Conference on Medical Education, Chicago, Aug. 30-Sept. 4, and the eighth general assembly of the World Medical Association (Montreal, Canada, Sept. 7-12) with a special chartered transportation plan. Members of

the national medical associations and their families are eligible to apply for reservations on the chartered flights. Dr. Bauer noted that the conference dates fell during the "peak season" of tourist travel which might make it more difficult for the participants to obtain the regular commercial reservations they wished, and that the plan would provide substantial financial savings for the member associations, their delegates, and participants at the meetings. Additional information may be obtained from The World Medical Association, 10 Columbus Circle, New York 19.

Maxillofacial Surgeons Meet in Chicago.—The 13th annual meeting of the American Society of Maxillofacial Surgeons will be held May 10-13 at the Palmer House, Chicago. Five symposiums will be presented under the following titles and moderators:

Oral Lesions, Dr. Casper Epsteen, Chicago.
Surgical Repair of Cleft Palate, Dr. Fred S. Dunn, New York City.
Treatment of Malignant Diseases of the Head and Neck, Dr. Arthur Dick, Washington, D. C.
Tumors of the Salivary Glands, Dr. Orion H. Stuteville, Chicago.
Traumatic Injuries of the Face and Head, Dr. Walter W. Dalitsch, Chicago.

Two movies are planned: "Mandibular Prognathism" and "Open Vertical Subcondylectomy for Correction of Prognathism." The dinner is planned for May 12, 8 p.m. A panel on "Burns of the Face and Mouth," moderated by Dr. Louis W. Schultz, Chicago, will conclude the meeting. For information, write Dr. O. H. Stuteville, Secretary, American Society of Maxillofacial Surgeons, 700 N. Michigan Ave., Chicago 11.

Cancer Among Children.—Cancer currently causes about 4,000 deaths a year in the United States among children under 15 years of age, it is reported by statisticians of the Metropolitan Life Insurance Company. This is nearly 50% higher than the toll only a decade ago, reportedly reflecting in part the rapid growth of the child population. In the 5-14 age group, cancer takes more lives than any other disease, accounting for one out of every four deaths from disease. The death rate from cancer in childhood is highest at the preschool ages, rising gradually to a peak between ages three and four, the statisticians point out. At each of the childhood ages, the rate among boys exceeds that among girls by one-fifth. Leukemia is the most common form of cancer in childhood, being responsible for nearly half the cancer death toll at ages under 15. Cancers of the nervous system—chiefly the brain—constitute the second most frequent category and account for about one-fifth of all deaths from cancer in childhood. Other fairly frequent sites of childhood cancer are the kidney and bone.

Grants for Virus Research.—The sum of $1,040,750 was appropriated by the Rockefeller Foundation for the support of its operating program in the investigation and control of virus diseases during the calendar year 1959. This program is conducted by members of the foundation's professional staff in central laboratories in New York City and in cooperative field laboratories in India, South Africa, Trinidad, Brazil, and California. The program is at present concentrated on the viruses which are transmitted by insects and ticks and which infect birds, the lower mammals, and man. The program began in 1949 with the study of about 15 viruses which had been discovered but not identified during work on the yellow fever virus. This investigation culminated in the production of a vaccine which has reportedly reduced yellow fever to a minor role as a public health threat. More than 70 "arbor" (ARthropod-BORne) viruses have been isolated and identified in the intervening years, and the relation of a number of them to serious human infections and to animal diseases of economic importance has been established.

Morbidity Report.—About 438 million acute illnesses involving either restricted activity or medical attention or both occurred among the American people during the year ending June 30, 1958. The number of such illnesses averaged 2.6 for every person in the population. The figures are from the U. S. National Health Survey, which shows that the incidence was highest in the youngest age groups and decreased progressively in each older age group. The rates ranged from an average of 4 illnesses among children under 5 to 1.6 illnesses per person 65 or over. The incidence rate among females was slightly higer than for males. Respiratory ailments accounted for 65% of all the illness involving medical attention or restricted activity. The respiratory illnesses caused 1,172 million days of restricted activity, or an average of 7 days per person. About half of this time involved bed disability. The days of restricted activity included 219 million days lost from work, and 196 million days lost from school. The incidence of these illnesses reportedly reflects the impact of the Asian influenza epidemic which occurred during the year.

Plan Nation-Wide Atomic Fall-Out Measurements.—The U. S. will have a nation-wide monitoring network to measure atomic fall-out "within a matter of months," Mr. Lewis Berry, assistant director for plans and operations of the Office of Civil Defense Mobilization (OCDM) reported March 12 at the University of Michigan, Ann Arbor. The network would be established in existing federal installations, including airport control towers, weather bureaus, and forest-ranger stations. Mr. Berry said nonmilitary defense planning "is now over the hump," citing these signs of progress:

1. Preparation of a national plan for nonmilitary defense, which is now being supplemented with state and local plans;
2. Development of matching fund programs for training of personnel and other federal-state activities in this field; and
3. Planning for continuity of government at all levels in the event of a national emergency or enemy attack.

OCDM is encouraging states to select alternate sites for government headquarters, to provide for preservation of key records, and to develop plans for complete use of state personnel and facilities in emergencies, Mr. Berry said.

Committee on Education for National Foundation.—To guide the expanded program of education for the health professions of The National Foundation as it moves into the fields of birth defects and arthritis, a new Committee on Professional Education has been announced by Basil O'Connor, president of the organization (originally known as the National Foundation for Infantile Paralysis). The committee is headed by Dr. Thomas B. Turner, dean of the Medical Faculty, Johns Hopkins University, Baltimore. Dr. Turner is also vice-chairman of the National Foundation Committee on Research. The function of the committee is to advise The National Foundation in allocating March of Dimes funds to help increase the nation's reservoir of qualified scientific investigators and trained health personnel. In its 21-year history, March of Dimes assistance for specialized training has been given to more than 7,000 students. One of the first undertakings of the committee will be to guide the development of The National Foundation's new 12-million-dollar health scholarship plan, wherein 505 four-year college scholarships will be offered annually in nursing, medical social work, physical therapy, occupational therapy, and medicine.

Awards for Research.—Nine U. S. scientists received Borden Awards of a gold medal and $1,000 during 1958 "for outstanding research achievements." The 1958 winners' scientific contributions are reviewed in an annual directory released by the Borden Company Foundation. Administered by professional and scientific associations, 161 Borden awards have been made by the foundation since the program was initiated in 1937. The administering groups and the 1958 winners are:

The American Chemical Society—William G. Gordon, Ph.D., Eastern Regional Research Laboratory, U. S. Department of Agriculture, for contributions in the fundamental chemistry of milk products.

The American Dairy Science Association—W. James Harper, Ph.D., Ohio State University, for contributions in dairy bacteriology and biochemistry.

The American Dairy Science Association—Jay L. Lush, Ph.D., Iowa State College, for research in the genetics and breeding of dairy cattle.

The American Home Economics Association—May S. Reynolds, Ph.D., University of Wisconsin, for research in protein metabolism.

The Association of American Medical Colleges—Dr. Severo Ochoa, department of biochemistry, New York University, for research on the enzymatic mechanisms of metabolism.

The American Institute of Nutrition—Lemuel D. Wright, Ph.D., Graduate School of Nutrition, Cornell University, for the development of microbiological assay procedures for vitamins and the discovery of biocytin.

The American Academy of Pediatrics—Dr. Charles D. May, College of Physicians and Surgeons, Columbia University, for contribution to long-term metabolic studies of infants fed human milk.

The Loultry Science Association—George M. Briggs, Ph.D., Laboratory of Nutrition and Endocrinology, National Institutes of Health, Bethesda, Md., for basic research in the area of Nutritional interrelationships.

The American Veterinary Medical Association—Chester A. Manthei, D.V.M., U. S. Department of Agriculture, Beltsville, Md., for research in the control and eradication of brucellosis in dairy cattle.

Medical Aid Team Goes to Viet Nam.—The first contingent of a U. S. medical team left San Francisco March 30 on an emergency volunteer mission to the Cho Ray Hospital at the University of Saigon, Viet Nam. They are Dr. Richard H. Overholt, clinical professor of surgery, Tufts Medical School, Boston; Dr. Max S. Sadove, professor of surgery (anesthesiology), University of Illinois Medical College, Chicago; Miss Kathryn O'Donnell, R.N., chief nurse of the thoracic clinic, Overholt Clinic in Boston; and Miss Shirley S. Wolf, R.N., surgical nurse of the University of Maryland Medical School Hospital, Baltimore. Sponsored by MEDICO, the group, eventually to total seven, is responding to a request of the government of Viet Nam for aid in "clearing up a backlog of pulmonary tuberculosis cases threatening to overwhelm the limited medical facilities" of that Asian country. They will also demonstrate up-to-date methods of treatment of lung diseases. Tuberculosis is the major health menace of Viet Nam, accounting for 80% of deaths. Drs. Overholt and Sadove will be in Saigon from April 1 to June 1. They will be jointed on May 1 by Dr. James B. Littlefield, assistant professor of surgery, University of Virginia Medical School, Charlottesville, and Dr. Peter J. Safar, chief of anesthesiology, Baltimore City Hospitals, both of whom will remain until July 1. The remaining member of the team, Dr. John M. Keshishian, instructor in surgery, George Washington University Medical School, Washington, D. C., plans to be at the Saigon Hospital from June 15 to Aug. 15. Nurses Wolf and O'Donnell will remain for four months, April 1 to Aug. 1. MEDICO (Medical International Cooperation) is a private, nonprofit and nonsectarian organization for American medical assistance to the newly developing countries of Asia, Africa, and Latin America. Its honorary patron is Dr. Albert Schweitzer, and its secretary general is Dr. Peter D. Comanduras. Among the other medical projects it supports are the work of Dr. Thomas A. Dooley in Laos, Dr. Gordon Seagrave (the "Burma Surgeon") in Burma, Dr. Albert Schweitzer in Gabon, Central Africa; Dr. Theodor Binder in Peru, Dr.

Karl Erben in Pakistan, and Dr. Louis Mars in Haiti. MEDICO is a division of the International Rescue Committee, a 25-year-old refugee welfare organization.

CORRECTIONS

Nerve Block for Surgery of the Hand and Forearm.—In Dr. Preston J. Burnham's paper entitled "Simple Regional Nerve Block for Surgery of the Hand and Forearm" (Feb. 28, page 941) in the third line of the second paragraph the word "accomplished" was in error and the word should have been "accompanied."

Poliomyelitis Vaccine Preparation and Administration.—In the article by Dr. Salk (April 18, page 1829) entitled "Poliomyelitis Vaccine Preparation and Administration," the last sentence of the initial boxed summary should have read as follows: The substantial rise in antibody titer induced by a fourth dose of a selected lot of vaccine suggested that failure of previous injection was probably due to the use of vaccines of less than optimal potency.

EXAMINATIONS AND LICENSURE

MEDICAL SPECIALTY BOARDS

AMERICAN BOARD OF ANESTHESIOLOGY: *Written.* Various locations, July 8, 1960. Final date for filing application is January 8. Sec., Dr. Forrest E. Leffingwell, 217 Farmington Ave., Hartford 5, Conn.

AMERICAN BOARD OF DERMATOLOGY: *Written.* Several Cities, Oct. 5. *Oral.* Oklahoma City, Jan. 15-18, 1960. The final date for filing all applications is July 1, 1959. Sec., Dr. Beatrice M. Kesten, One Haven Ave., New York 32.

AMERICAN BOARD OF INTERNAL MEDICINE: *1959 Schedule—Written,* Oct. 19. Final date for filing application was May 1. *Oral.* For candidates on the West Coast, Portland, Ore., Sept. 9-12. Final date for filing application was March 1. *Oral.* For candidates on the East Coast, Nov. 6-7, 9-10. Final date for filing application was March 1. Sec.-Treas., Dr. William A. Werrell, One West Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: Examination given twice annually, in the spring and fall. In order to be eligible a candidate must have his application filed at least six months before the examination time. Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, St. Louis 10.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Applications for certificates, new and reopened, Part I, and requests for re-examination Part II are now being accepted. All candidates are urged to make such application at the earliest possible date. Deadline date for receipt of applications is August 1, 1959. No applications can be accepted after that date. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6, Ohio.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral.* Philadelphia, June 2-6; St. Louis, Oct. 6-10. *Written.* January 1960 in various cities. Applications for the 1960 written examination must be filed before July 1. Sec., Dr. Merrill J. King, Box 236, Cape Cottage Branch, Portland, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Part II.* Chicago. Jan. 19-21, 1960. The deadline for the receipt of application is Aug. 15, 1959. Sec., Dr. Sam W. Banks, 116 South Michigan Ave., Chicago 3.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* Chicago, Oct. 5-9. Final date for filing application was April 1. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City.

AMERICAN BOARD OF PEDIATRICS: *Written.* January 1960. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION: *Written, Part I,* and *Oral, Part II.* Philadelphia, June 12-13. Final date for filing application was February 15. Sec., Dr. Earl C. Elkins, 200 First St., S. W., Rochester, Minn.

AMERICAN BOARD OF PLASTIC SURGERY: *Oral and Written.* Miami, Fla., Oct. 15-17. Final date for submitting case reports is July 1. Corresponding Secretary, Miss Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8, Mo.

AMERICAN BOARD OF PROCTOLOGY: *Oral and Written.* Philadelphia, September. Final date for filing application was March 15. Sec., Dr. Stuart T. Ross, 520 Franklin Ave., Garden City, N. Y.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Chicago, Oct. 19-20; New York, Dec. 14-15; San Francisco, Mar. 14-15, 1960. Training credit for full time psychiatric and/or neurologic assignment in unapproved military programs or services between the dates of Jan. 1, 1950 and Jan. 1, 1954 was terminated on Jan. 1, 1959. Sec., Dr. David A. Boyd, 102-110 Second Ave. S. W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY: *Examination.* Chicago, June 2-4. The deadline for filing applications was April 1. Washington, Dec. 6-9. Deadline for filing application is July 1. Candidates examined in Diagnostic Roentgenology may expect to be examined in Physics. A Special Examination in Nuclear Medicine (for diplomates in Radiology or Therapeutic Radiology) will not be given in June 1959. Candidates desiring this examination will be accommodated at the meeting of the Board in Washington, D. C. on December 5. Deadline for filing application is August 1. Sec., Dr. H. Dabney Kerr, Kahler Hotel Bldg., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written* examinations (Part I) will be held on December 2, 1959 at various centers to be announced later. Candidates are urged to apply several months before completion of training requirements although the closing date for filing applications is August 1. Those completing training requirements after September 30 cannot be considered for the Part I examination in December of the same year. *Part II.* Columbus, Ohio, May 14-15. Sec., Dr. John B. Flick, 1617 Pennsylvania Blvd., Philadelphia 3.

BOARD OF THORACIC SURGERY: *Written.* Various centers throughout the country, September 1959. Final date for filing application is July 1. *Oral.* September. Final date for filing application is July 1. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2, Mich.

AMERICAN BOARD OF UROLOGY: *Written.* Approximately 25 cities throughout the country, December 4, 1959. *Oral-Clinical* and *Examination in Pathology.* Chicago, February 1960. Final date for filing application is Sept. 1, 1959. Sec., Dr. William Niles Wishard, 30 Westwood Rd., Minneapolis 26, Minn.

DEATHS

Connell, Isee Lee Ⓜ Jacksonville, Fla.; University of Chicago, The School of Medicine, 1930; veteran of World Wars I and II; recipient of University of Chicago Alumni Foundation Award of Merit for leadership in fund raising; served as health officer of Cleburne County and Clarke County, Ala.; died Feb. 14, aged 66.

Crooks, William James Ⓜ Clinton, N. J.; Tufts College Medical School, Boston, 1932; on the staff of the Clara Maas Hospital in Belleville; died Feb. 14, aged 57.

D'Amico, Joseph Ⓜ New Haven, Conn.; Regia Universitá degli Studi di Roma. Facoltà di Medicina e Chirurgia, Italy, 1937; interned at Hospital of St. Raphael; member of the American Academy of General Practice; died Feb. 11, aged 51.

Darling, Frank Edward Sr. Ⓜ Milwaukee; Wisconsin College of Physicians and Surgeons, Milwaukee, 1903; served on the faculty of his alma mater; at one time registrar of vital statistics for the city health department; during World War I was in charge of surgical services at a base hospital in France; associated with St. Joseph's Hospital in West Bend, St. Alphonsus Hospital in Port Washington, St. Joseph's Hospital in Hartford, and St. Michael Hospital; died Feb. 13, aged 79.

Davis, Emmer Palmore, Oklahoma City, Okla.; University of Oklahoma School of Medicine, Oklahoma City, 1912; veteran of World War I; served with the Veterans Administration in Phoenix, Ariz.; died Feb. 3, aged 74.

Dessau, Frederick Isaac Ⓜ Nyack, N. Y.; born in Hamburg, Germany, March 23, 1910; Hamburgische Universität Medizinische Fakultät, Hamburg, Germany, 1937; specialist certified by the American Board of Pathology; certified by the National Board of Medical Examiners; member of the American Trudeau Society, American Association of Pathologists and Bacteriologists, and the College of American Pathologists; head pathologist at the Lederle Laboratories at Pearl River; instructor of pathology at Harvard Medical School in Boston from 1939 to 1943; research fellow at Yale University in New Haven, Conn., from 1939 to 1943; died in the Presbyterian Hospital in New York City Feb. 23, aged 48.

Dorsey, Thomas Manning Ⓜ Louisville, Ky.; University of Louisville Medical Department, 1912; served overseas during World War I; formerly on the faculty of his alma mater; associated with SS Mary and Elizabeth Hospital, St. Anthony's Hospital, and Louisville City Hospital; died in St. Joseph Infirmary Feb. 13, aged 72.

Downs, Lawrence Ethridge Ⓜ Los Angeles; University of Louisville (Ky.) Medical Department, 1912; member of the International College of Surgeons; on the governor's staff of the examining board in the state of Kansas during World War I; served on the Los Angeles examining board of Selective Service during World War II; a member of the Hollywood Academy of Medicine, from which organization he received an award on Feb. 12, 1959, for 25 years of active service; one of the founders of the Hollywood Presbyterian Hospital, where he was on the staff for 25 years; died Feb. 18, aged 75.

Dragoo, Farrol Andrew Ⓜ Middletown, Ind.; Indiana University School of Medicine, Indianapolis, 1932; veteran of World War II; on the staff of St. John's Hospital in Anderson and the Henry County Hospital in New Castle, where he died Feb. 1, aged 54.

Du Bois, Eugene Floyd, New York City; born in West New Brighton, N. Y., June 4, 1882; Columbia University College of Physicians and Surgeons, New York City, 1906; specialist certified by the American Board of Internal Medicine; since 1950 emeritus professor of physiology at Cornell University Medical College, where he joined the faculty in 1910 as an instructor in applied pharmacology, subsequently serving as associate professor of medicine, professor of medicine, and professor of physiology; medical director of the Russell Sage Institute of Pathology from 1913 to 1950; veteran of World War I and was awarded the Navy Cross; served during World War II; chairman of the committee on aviation medicine of the National Research Council from 1940 to 1945; member and past-vice-president of the Association of American Physicians and in 1947 received its Kober Medal; member of the American Society of Clinical Investigation and the Aero Medical Association; fellow of the American College of Physicians and in April was to have received its John Phillips Memorial Award in Chicago; from 1932 to 1941 physician in chief at the New York Hospital; for many years associated with the Bellevue Hospital; author of "Basal Metabolism in Health and Disease"; received the degree of doctor of science, University of Rochester, in 1948; died Feb. 12, aged 76.

Ⓜ Indicates Member of the American Medical Association.

Duggan, James Archie Ⓜ South Bend, Ind.; University of Maryland School of Medicine, Baltimore, 1912; veteran of World War I; served as superintendent of St. Joseph County Tuberculosis Hospital; associated with Memorial and St. Joseph's hospitals; died Feb. 10, aged 69.

Edwards, Charles B., Lincoln, Neb.; John A. Creighton Medical College, Omaha, 1913; veteran of World War I; served as a member of the board of education in Kearney; member of the state board of health; formerly consultant to the Veterans Administration for rehabilitation work with disabled veterans; died in St. Joseph's Hospital, Phoenix, Ariz., Feb. 6, aged 69.

Einstein, Otto Ⓜ Colorado Springs, Colo.; Eberhard–Karls–Universität–Medizinische Fakultät, Tübingen, Würtemberg, Germany, 1900; member of the American Trudeau Society; served a residency at the Modern Woodmen of America Sanatorium in Woodmen; resident at the Cragmor Foundation; associated with Glockner and St. Francis hospitals; died Feb. 9, aged 82.

Failmezger, Theodore Richard Ⓜ Clearwater, Fla.; born in Brooklyn Aug. 20, 1904; Jefferson Medical College of Philadelphia, 1934; also a graduate in pharmacy; specialist certified by the American Board of Internal Medicine; interned at the Orange Memorial Hospital in Orange, N. J.; served a residency in medicine at the New York Post-Graduate Medical School and Hospital in New York City; member of the American Rheumatism Association, American Geriatrics Association, New Jersey Heart Association, and the New Jersey Diabetes Association; fellow of the American College of Physicians; veteran of World War II; at one time practiced in Madison, N. J., where he was president of the board of health from 1937 to 1939, and from 1937 to 1957 physician to Drew University; served on the staffs of the New York Post-Graduate Medical School and Hospital in New York City, New Jersey Orthopaedic Hospital in Orange, N. J., and the All Souls and Morristown Memorial hospitals in Morristown, N. J.; on the staff of the Morton Plant Hospital; died Feb. 7, aged 54.

Ferrell, Grover C., Eldorado, Ill.; Chicago College of Medicine and Surgery, 1912; past-president of the Saline County Medical Society; surgeon for the New York Central, Illinois Central and Louisville and Nashville Railroad companies; associated with Ferrell Hospital, where he died Feb. 4, aged 72.

Finklea, Orion Tiverton Ⓜ Florence, S. C.; Medical College of South Carolina, Charleston, 1918; member of the Southeastern Surgical Congress and the American Urological Association; fellow of the American College of Surgeons; for eight years chairman of the city school board and two years chairman of the South Carolina School Boards; on the staffs of the Saunders Memorial Hospital and McLeod Infirmary, where he died Feb. 7, aged 63.

Flude, John Meredith Ⓜ Long Beach, Calif.; Jefferson Medical College of Philadelphia, 1918; served as western field representative of the American Society for the Control of Cancer; formerly medical supervisor for the department of social security in the state of Washington; associated with the Community Hospital and the Seaside Hospital, where he died Feb. 9, aged 65.

Fuller, Homer Gifford Ⓜ Washington, D. C.; George Washington University School of Medicine, Washington, 1904; specialist certified by the American Board of Urology; member of the American Association of Genito-Urinary Surgeons and the American Urological Association; fellow of the American College of Surgeons; served on the faculty of his alma mater; for many years on the staff of the Garfield Memorial Hospital; died in the Doctor's Hospital Feb. 13, aged 80.

Gebert, Clara McGrew Ⓜ Valley Park, Mo.; St. Louis College of Physicians and Surgeons, 1922; died Feb. 18, aged 74.

Gladstone, William R. Ⓜ Walton, N. Y.; Bellevue Hospital Medical College, New York City, 1898; served on the staff of the Delaware Valley Hospital; died Feb. 2, aged 87.

Gold, Joseph Brand Ⓜ Santa Fe, N. M.; University of Pittsburgh School of Medicine, 1914; served overseas during World War I; formerly practiced in Pittsburgh, where he was on the staffs of Mercy and Passavant hospitals; died Feb. 8, aged 69.

Goodrich, William Albert Ⓜ Hartford, Conn.; born in Waterbury, Oct. 4, 1909; Columbia University College of Physicians and Surgeons, New York City, 1935; specialist certified by the American Board of Radiology; member of the American Roentgen Ray Society and Radiological Society of North America; counselor for Connecticut of the American College of Radiology; a past-president and secretary treasurer of the radiology section of the Connecticut State Medical Society; veteran of World War II; on the staffs of the Charlotte Hungerford Hospital in Torrington, Johnson Memorial Hospital in Stafford Springs, and the Hartford Hospital, where he died Feb. 11, aged 49.

Gomolski, Edmund Alphonse Ⓜ Toledo, Ohio; University of Michigan Medical School, Ann Arbor, 1930; died in St. Vincent's Hospital Jan. 26, aged 55.

Grise, William Bramwell Ⓜ Austin, Minn.; Western Reserve University School of Medicine, Cleveland, 1914; served as president of the Mower County Medical Society; a trustee of the Macalester College in St. Paul; a staff member of St. Olaf Hospital, where he died Feb. 20, aged 73.

Groves, Robert Burwell, Lowell, N. C.; Medical College of Virginia, Richmond, 1924; past-president of the Gaston County Medical Society; veteran of World War I; a member of the staffs of Gaston Memorial and Garrison General hospitals; died in Charlotte Feb. 8, aged 60.

Gsell, Jacob Franklin Ⓜ Wichita, Kan.; Rush Medical College, Chicago, 1895; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; charter member and first president of the Sedgwick County Medical Society; past-president of the Kansas Medical Society; on the staff of St. Francis Hospital; died Feb. 12, aged 85.

Hall, Allon Killough, La Porte, Texas; Tulane University School of Medicine, New Orleans, 1946; member of the American Academy of General Practice; interned at Scott and White Hospital in Temple; served a residency at the Veterans Administration Hospital in Houston; for two years a flight surgeon in the Air Force; associate professor of ophthalmology at Baylor University College of Medicine in Houston; on the staff of San Jacinto Memorial Hospital in Baytown; died Feb. 7, aged 35.

Harber, Harry Paul Ⓜ Dallas, Texas; University of Texas School of Medicine, Galveston, 1917; on the faculty of Baylor University College of Medicine in Houston; on the staffs of the Baylor University, St. Paul's and Medical Arts hospitals; died Feb. 3, aged 68.

Harris, Benjamin Henry Ⓜ Philadelphia; Temple University School of Medicine, Philadelphia, 1919; died Feb. 8, aged 63.

Harrison, H. Wesley Ⓜ Detroit; University of Michigan Medical School, Ann Arbor; 1924; medical director of the Alcoa–Aluminum Company of America; an executive board member and secretary treasurer of the medical staff at St. Joseph Mercy Hospital, where he died Feb. 3, aged 58.

Hebald, Selian Ⓜ New York City; Columbia University College of Physicians and Surgeons, New York City, 1919; received a Presidential Citation for his work with the Selective Service system during World War II; founding member of the American Academy of Allergy; associated with the Hospital for Joint Diseases and Roosevelt Hospital; died Feb. 17, aged 63.

Hines, Sidney Gilbert, Grayson, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1908; died in Alexandria Feb. 2, aged 75.

Hollander, Lester Ⓜ Pittsburgh; University of Pittsburgh School of Medicine, 1912; specialist certified by the American Board of Dermatology and Syphilology; member of the American Academy of Dermatology and Syphilology and the American Radium Society; fellow of the American College of Physicians; founder and director of the Pittsburgh Skin and Cancer Foundation; affiliated with the Montefiore Hospital; died Feb. 2, aged 68.

Holmes, Prince Albert, Mount Vernon, Mo.; St. Louis College of Physicians and Surgeons, 1909; died in Springfield Baptist Hospital in Springfield Feb. 2, aged 79.

Howard, Walter M. Ⓜ Joplin, Mo.; Washington University School of Medicine, St. Louis, 1930; member of the staffs of Freeman Hospital and St. John's Hospital, where he died Jan 7, aged 53.

Hull, Chloe Frances, Laramie, Wyo.; Medical College of Indiana, Indianapolis, 1902; for many years a medical missionary in India; died in the Wyoming State Hospital, Evanston, Jan. 26, aged 84.

Jakobson, Ber, Rome, N. Y.; University of Kharkov Faculty of Medicine, Russia, 1914; medical officer in the Russian Army during World War I; associated with the Rome State School; died in Rome Hospital Feb. 4, aged 68.

Jensen, Gordon Melvin Ⓜ Logan, Utah; Medical College of South Carolina, Charleston, 1943; interned at St. Vincent's Hospital in Portland, Ore.; formerly a resident at the Veterans Administration Hospital in Salt Lake City; veteran of World War II; on the staffs of the Latter Day Saints Hospital; died in Salt Lake City Feb. 3, aged 45.

Johnston, Robert Sherwood, Chana, Ill.; Illinois Medical College, Chicago, 1904; served on the staff of St. Anthony Hospital in Rockford; died Feb. 5, aged 86.

Kallus, Edward John Ⓜ Colonel, U. S. Army, retired, Lufkin, Texas; University of Texas School of Medicine, Galveston, 1922; entered the regular Army in 1924; veteran of World War II; retired July 31, 1948; member of the Radiological Society of North America; died Feb. 6, aged 61.

Kamerer, Russell Peter Ⓜ Perryopolis, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1907; died in the Western Pennsylvania Hospital, Pittsburgh, Feb. 9, aged 80.

Kent, Louis Clarence, Manchester, Mich.; Detroit College of Medicine, 1901; served as village president, president of the Manchester school board, and village council member; died in the Herrick Memorial Hospital, Tecumseh, Feb. 21, aged 91.

Kenyon, Frances Aureola Ⓜ Woodville, R. I.; the Hahnemann Medical College and Hospital, Chicago, 1894; for 32 years medical examiner of Washington County; served as Richmond town health officer and school physician; for many years school

physician in Hopkinton; chosen in 1956 as "Woman of the Year" by the Westerly Quota Club, of which she was a member; associated with Roger Williams General Hospital in Providence and the Westerly (R. I.) Hospital; died Feb. 15, aged 87.

Kerley, William Wilburn Ⓜ Anadarko, Okla.; Arkansas Industrial University Medical Department, Little Rock, 1898; past-president of the Oklahoma State Medical Association and the Caddo County Medical Society; county coroner; died Feb. 27, aged 87.

Kinsey, Ernest Schroeder Ⓜ Syracuse, N. Y.; Syracuse University College of Medicine, 1941; on the courtesy staff of Syracuse General and Crouse Irving hospitals; died in St. Joseph's Hospital Feb. 18, aged 41.

Klug, Oscar C. Ⓜ East St. Louis, Ill.; Chicago College of Medicine and Surgery, 1913; on the staffs of St. Mary's and Christian Welfare hospitals; died in the Memorial Hospital, Belleville, Feb. 6, aged 77.

Konheim, Vladimir M. Ⓜ Poughkeepsie, N. Y.; Friedrich–Wilhelms–Universität Medizinische Fakultät, Berlin, Prussia, Germany, 1928; served on the staff of the Montefiore Hospital in New York City; consultant in dermatology at the Wassaic State School in Wassaic, Harlem Valley State Hospital, Wingdale, Northern Dutchess Health Center in Rhinebeck, and St. Francis Hospital and the Vassar Brothers Hospital, where he died Feb. 15, aged 66.

Kuntz, Wesley W. Ⓜ Barry, Ill.; Northwestern University Medical School, Chicago, 1905; veteran of the Spanish–American War and World War I; died Feb. 1, aged 83.

LaMont, Wyant Ⓜ Beverly Hills, Calif.; Rush Medical College, Chicago, 1925; certified by the National Board of Medical Examiners; veteran of World War II; member of the American Academy of General Practice; on the staffs of St. John's and Santa Monica hospitals in Santa Monica, and the Culver City (Calif.) Hospital, where he died Feb. 7, aged 59.

Landy, George Raymond Ⓜ Lansing, Mich.; University of Michigan Medical School, Ann Arbor, 1933; served as village health officer and village president in Eau Claire; clinic physician of the Ingham County Health Department; died Feb. 6, aged 52.

Lane, John Loftin Ⓜ Rocky Mount, N. C.; North Carolina Medical College, Davidson, 1906; on the staff of the Rocky Mount Sanitarium, where he died Jan. 30, aged 79.

Lankford, Joseph Frederick Ⓜ Lieut. Commander, U. S. Navy, retired, Albuquerque, N. M.; Indiana University School of Medicine, Indianapolis, 1909; veteran of World War I; entered the Navy in 1920 and retired June 30, 1941; died in the Veterans Administration Hospital Feb. 17, aged 73.

Laughlin, Zach Monroe, Phoenix, Ariz.; Central College of Physicians and Surgeons, Indianapolis, 1905; formerly associated with the Indian Service; died Jan. 30, aged 81.

Lawlor, Edward Francis, Waltham, Mass.; Boston University School of Medicine, 1935; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; veteran of World War II and was awarded the Bronze Star; on the staffs of the Massachusetts Eye and Ear Infirmary, Boston, Newton Wellesley Hospital in Wellesley, and Waltham (Mass.) Hospital, where he died Jan. 27, aged 47.

Le Compte, Elmo Mansfield, Springfield, Mo.; University of Louisville (Ky.) Medical Department, 1910; died Jan. 25, aged 76.

Lehrman, Raphael, Bayside, N. Y.; Long Island College Hospital, Brooklyn, 1918; died Dec. 2, aged 70.

McKee, Mary Ada Ⓜ Oil City, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1896; past-president of the medical staff and chief of the department of obstetrics at the Oil City Hospital, where in April, 1954, the M. Ada McKee Memorial Library was opened in her honor; in April, 1955, the Oil City Franklin Zonta Club honored her with a "This is Your Life" program and presented her with an honorary membership; in 1955 she received the Golden Deeds Award from the Oil City Exchange Club; died in the Oil City Hospital Feb. 6, aged 87.

McNamara, John Grover, Marion, Ohio; Starling–Ohio Medical College, Columbus, 1910; past-president of the Marion Academy of Medicine; veteran of World War I; past-president of the Marion County Agricultural Society; associated with the Marion General Hospital, where he died Feb. 13, aged 73.

Mackey, William Barry, Reagan, Texas; University of Nashville Medical Department, Nashville, Tenn., 1898; veteran of World War I; died in the Veterans Administration Hospital, Marlin, Jan. 24, aged 88.

Madler, Nicholas Allen Ⓜ Greeley, Colo.; Rush Medical College, Chicago, 1904; fellow of the American College of Surgeons; past-president of the Weld County Medical Society and the Colorado State Medical Society; at one time was the senior chief examiner of Colorado Selective Service System; associated with the Weld County General Hospital; one of the organizers of the Greeley

Kiwanis Club and was its first president in 1922; died in St. Joseph's Hospital, Denver, Feb. 6, aged 77.

Magson, Albert Edward Ⓜ Hightstown, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1938; died in the McKinley Hospital, Trenton, Feb. 1, aged 46.

Marel, Abraham Hersch Ⓜ Brooklyn; Medizinische Fakultät der Universität, Vienna, Austria, 1913; physician emeritus at Beth–El Hospital and consulting physician at Jewish Chronic Disease Hospital, where he was past-president of the medical board; died Dec. 22, aged 72.

Maxwell, Elmer Stephens Ⓜ Lexington, Ky.; Vanderbilt University School of Medicine, Nashville, Tenn., 1913; specialist certified by the American Board of Pathology; past-president of the Fayette County Medical Society; served overseas during World War I; member of the Central Society for Clinical Research, College of American Pathologists, and the American Society of Clinical Pathology; formerly on the faculty of his alma mater and the University of Louisville School of Medicine; member and past-president of the staff of Good Samaritan Hospital, where in 1956 the board of trustees named the new pathology laboratory after him; member and past-president of the staff of St. Joseph's Hospital, where he died Jan. 9, aged 70.

Mazzacano, Anthony Ferdinand, Flushing, N. Y.; New York Homeopathic Medical College and Flower Hospital, New York City, 1931; veteran of World War II; died Dec. 21, aged 54.

Millberg, William Ⓜ Ashtabula, Ohio; Jefferson Medical College of Philadelphia, 1925; member of the American Academy of General Practice and the International College of Surgeons; on the staff of the Ashtabula General Hospital; died in the Jefferson Hospital, Philadelphia, Feb. 1, aged 61.

Mitchell, Samuel Everett Ⓜ Malden, Mo.; St. Louis University School of Medicine, 1906; died Feb. 4, aged 86.

Morrill, Edgar Miner Ⓜ Fort Collins, Colo.; University of Colorado School of Medicine, Denver, 1932; fellow of the American College of Surgeons; for many years a member of the board of education; president of the District 5 Board of Education; veteran of World War II; on the staffs of the Loveland (Colo.) Memorial Hospital and the Larimer County Hospital; died Feb. 3, aged 50.

Morris, Earl Fayette Ⓜ Nevada, Mo.; St. Louis University School of Medicine, 1926; member of the American Psychiatric Association; veteran of World War I; served on the staff at Larned (Kan.) State Hospital and as clinical director at Western State Hospital at Fort Supply, Okla.; clinical director of the State Hospital No. 3; formerly director of health and physical education, Kansas State Teachers' College in Hays, Kan.; died Feb. 4, aged 65.

Nadler, Carl Seepe Jr. Ⓜ New Orleans; Tulane University School of Medicine, New Orleans, 1941; assistant professor of clinical medicine at his alma mater; president of the Louisiana Society of Internal Medicine; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; veteran of World War II; on the staffs of the Touro Infirmary, Charity, Eye, Ear, Nose and Throat, and Southern Baptist hospitals; died in Metairie, La., Feb. 5, aged 41.

O'Donnell, Leo Joseph Ⓜ New York City; Cornell University Medical College, New York City, 1927; specialist certified by the American Board of Obstetrics and Gynecology; fellow of the American College of Surgeons; associate clinical professor of obstetrics and gynecology at New York University College of Medicine; served on the staff of the Lenox Hill Hospital; died Feb. 7, aged 57.

Orloff, Henry Samuel Ⓜ Philadelphia; Medico-Chirurgical College of Philadelphia, 1913; member of the draft board during World Wars I and II; on the staff of the Albert Einstein Medical Center, Southern Division; died Feb. 6, aged 76.

Palmer, James Newman Ⓜ New York City; McGill University Faculty of Medicine, Montreal, Que., Canada, 1937; member of the American Psychiatric Association; veteran of World War II; associated with the New York Psychoanalytic Institute; died Dec. 2, aged 47.

Pearson, Leb Elmer, Mangum, Okla.; Memphis (Tenn.) Hospital Medical College, 1904; veteran of World War I; died Jan. 7, aged 79.

Pisani, Adolfo, New York City; Regia Universita di Napoli Facolta di Medicina e Chirurgia, Italy, 1894; served on the staff of the Columbus Hospital; died in the Italian Hospital Feb. 14, aged 86.

Plant, Joseph Henry Ⓜ Los Gatos, Calif.; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; retired from the Veterans Administration Oct. 1, 1952; veteran of World War I; died in the Veterans Administration Hospital, Oakland, Feb. 6, aged 76.

Rath, Frieda, Elmhurst, N. Y.; Ludwig–Maximilians–Universität Medizinische Fakultät, München, Bavaria, Germany, 1933; died Dec. 27, aged 50.

Ranck, John Milton Ⓜ Leola, Pa.; Jefferson Medical College of Philadelphia, 1928; a director of the Leola National Bank; died in the Lancaster (Pa.) General Hospital Feb. 4, aged 59.

Schottstaedt, Wilhelm Emil Richard Ⓜ Fresno, Calif.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1909; past-president of the Fresno County Medical Society; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; for two terms president of the city board of education; served as a director of the Fresno County Red Cross Chapter and the Fresno County Tuberculosis Association; on the staffs of the Fresno County General Hospital and St. Agnes Hospital and the board of directors of the Fresno Community Hospital; died Jan. 27, aged 74.

Scott, Raymond Robert Ⓜ Selma, Calif.; Stanford University School of Medicine, San Francisco, 1926; fellow of the American College of Surgeons; veteran of World War II; associated with the Selma Community Hospital; died Dec. 1, aged 59.

Scroggs, William Paxton, Portland, Ore.; St. Louis University School of Medicine, 1908; veteran of World War I; died Dec. 20, aged 76.

Stanford, James Butt Ⓜ Dania, Fla.; born Dec. 17, 1886; College of Physicians and Surgeons, Memphis, Tenn., 1909; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; served overseas during World War I; past-president of the Tennessee State Medical Association and the Memphis (Tenn.) and Shelby County Medical Society; formerly practiced in Memphis, Tenn., where he was on the staffs of the Memphis Eye, Ear, Nose and Throat, Baptist Memorial, Methodist, and St. Joseph hospitals; died Jan. 29, aged 72.

Steierman, Charles S. Ⓜ Far Rockaway, N. Y.; Boston University School of Medicine, 1924; associated with St. Joseph's Hospital, where he died Dec. 4, aged 61.

Steuer, David B., Shaker Heights, Ohio; Western Reserve University Medical Department, Cleveland, 1895; also a graduate in pharmacy; formerly city council president; practiced in Cleveland, where he was associated with Mount Sinai Hospital; past-president of the Cleveland Pharmaceutical Association; died Jan. 30, aged 93.

Strader, Simon Ernest, Los Angeles; University of Oklahoma School of Medicine, Oklahoma City, 1917; veteran of World War II; died in the Wadsworth Veterans Administration Hospital Nov. 30, aged 64.

Sullivan, James Albert, St. Louis; St. Louis College of Physicians and Surgeons, 1908; veteran of World War I; died in Hillsboro, Mo., Dec. 21, aged 74.

Thomas, Efton Jewel Ⓜ Miami Beach, Fla.; Northwestern University Medical School, Chicago, 1937; member of the American College of Chest Physicians; served a residency at the Dade County Hospital in Miami; veteran of World War II and was awarded five battle stars during his period of service in France and Germany; on the staff of the James M. Jackson Memorial Hospital in Miami, where he served an internship; affiliated with St. Francis Hospital; died in the Veterans Administration Hospital in Coral Gables, Fla., Feb. 4, aged 46.

Vawter, Fred Loomis, Berryville, Ark.; St. Louis College of Physicians and Surgeons, 1895; died Jan. 11, aged 89.

Wechsler, David, Rego Park, N. Y.; University and Bellevue Hospital Medical College, New York City, 1907; associated with Boulevard Hospital in Astoria and the Physicians Hospital in Jackson Heights, where he died Jan. 11, aged 75.

Wentworth, Harry Wilder, College Place, Wash.; Jefferson Medical College of Philadelphia, 1896; served on the staff of the Nampa State School in Nampa, Idaho; died Jan. 5, aged 89.

Whelchel, Alvin John Ⓜ Cordele, Ga.; Atlanta College of Physicians and Surgeons, 1905; past-president of the Crisp County Medical Society; on the staff of the Crisp County Hospital, where he died Dec. 15, aged 79.

White, J. M., Okmulgee, Okla.; Leonard Medical School, Raleigh, N. C., 1902; died Jan. 24, aged 88.

White, LeMoyne Ⓜ Boston; Harvard Medical School, Boston, 1940; on the staff of the Massachusetts General Hospital, where he served an internship and a residency; certified by the National Board of Medical Examiners; veteran of World War II; member of the American Psychiatric Association; died in the Peter Bent Brigham Hospital Dec. 9, aged 44.

Wilhoit, Fred L., Fort Lauderdale, Fla.; Kentucky University Medical Department, Louisville, 1902; served on the faculty of the University of Louisville (Ky.) School of Medicine; for many years practiced in Louisville, Ky.; died in Fort Lauderdale Beach Hospital Dec. 30, aged 82.

Williams, Lehman William Ⓜ Savannah, Ga.; University of Maryland School of Medicine, Baltimore, 1909; member of the Southeastern Surgical Congress; veteran of World War I; past-president of the Lions Club; died in the Warren A. Candler Hospital Jan. 28, aged 71.

Young, Leslie Winters Ⓜ Fairfield, Ill.; St. Louis University School of Medicine, 1927; member of the American Academy of General Practice; veteran of World War II; past-president of the Wayne County Medical Society; member of the board of health of Fairfield; associated with the Fairfield Memorial Hospital; director of the Fairfield National Bank; died in Port-au-Prince, Haiti Jan. 24, aged 58.

FOREIGN LETTERS

AUSTRIA

C-Reactive Protein.—At the meeting of the Society of Physicians in Vienna on Feb. 13, Dr. G. Geyer used a rabbit antiserum to precipitate the so-called C-reactive protein (CRP). In agreement with reports in the literature the CRP was observed in the serum obtained from patients who had a high fever, inflammatory and necrotizing processes, or malignant tumors. Its occurrence has been interpreted as a reaction of the plasma-protein system to nonspecific noxa. Consequently, the significance of the CRP for diagnosis is similar to that of the sedimentation rate. CRP was not found in the serum of patients with paraproteinemia, plasmacytoma, and reticulosis, in whom the sedimentation rate was greatly increased. CRP determinations were found useful in evaluating the activity of rheumatic fever. Cortisone causes the rapid disappearance of CRP.

UNITED KINGDOM

Soft Drinks.—New regulations governing the composition, labeling, and advertising of soft drinks are recommended by the Food Standards Committee of the Ministry of Agriculture, Fisheries, and Food. The makers of saccharin strenuously oppose them. They say that replacement of saccharin with sugar would cost up to 8 million dollars and might mean an increase in cost of a penny on a bottle of ready-to-serve and twopence on a bottle of concentrated soft drink. The main recommendations are that all soft drinks containing fruit juice should bear a label stating the percentage of fruit juice in the drink; the use of saccharin should be prohibited except for diabetic drinks, and sugar used instead; the term "glucose" should be forbidden in the labeling and advertising of soft drinks, as well as any form of testimonial or nutritional claim based on the carbohydrate content; and the use of acids for acidifying and flavoring purposes should be restricted and the addition of ascorbic acid allowed, to restore the natural vitamin content, in drinks containing fruit juice.

Student Suicides.—An editorial in the *British Medical Journal* of March 7 comments on a paper published by Sir Alan Rook, from the department of human ecology, Cambridge University, in the same issue. Owing to the complexity of the troubles that lead people to commit suicide, and to the fact that they can usually be investigated only in retrospect, too little is known to take effective preventive action as often as is desirable. This is particularly true of suicides among university students. No apparent difference exists in the incidence of suicide at Cambridge between the decades 1928-1938 and 1948-1958, although a higher rate was found during the intervening 10 years, which included World War II. Student mortality as a whole can be summarized by saying that, of 103 undergraduate deaths in 35 years, 41 were due to accident, 35 to suicide, and only 27 to disease. The figures are similar to those at Oxford.

The combined suicide rate at seven other British universities is much lower than at Oxford and Cambridge, although it is still, so far as can be judged, about twice that for nonuniversity men of similar age in England and Wales. Suicide rates for women students are generally low. Rook showed that few of the ready explanations for the high suicide rate have withstood scrutiny. Ill-fated love affairs, shortage of money, inadequate intelligence, moral perplexity, and the strain of social adjustment that poorer students sometimes experience on arrival at the university have been blamed. No doubt all have figured in individual case histories, but none so far has appeared in more than a small proportion of cases. Among students who become mental patients disharmony between parents and disturbance of relations between the student and members of his family occur oftener than among controls, but M. A. Davidson and co-workers pointed out that over 50% of patients break down in spite of good relationships, and 20% of controls have had similar experiences without breaking down.

Clearly recognizable factors include work difficulties, with the added stress of examinations. Such difficulties may arise from badly organized plans for work, laziness, excessive outside interests, choice of wrong course, illness, or emotional upsets. All experienced counselors know how common is the student who, with an unrealistically high level of aspiration, is encouraged by parental or other pressures to reach for perfection and to regard as failure anything less than first-class honors. The formal diagnosis of depression covers many such situations, not only where reasons for reactive depression are assumed to be the cause but also where absence of any obvious cause earns it the epithet endogenous. Another common factor is the difficulty of finding a

The items in these letters are contributed by regular correspondents in the various foreign countries.

socially acceptable solution to the need for sexual expression. Homosexuality is possibly more commonly associated with suicide than the one case reported from Cambridge might suggest.

Getting Married.—The British Medical Association has stopped issuing its booklet "Getting Married." Dr. Winifred de Kok, who edited the booklet, resigned from the BMA in protest against this action, and so has the author of one of its frankest contributions, Dr. Eustace Chesser. In the booklet Dr. Chesser, a psychologist, discussed whether chastity was outmoded. The BMA action followed condemnation of the publication by physicians and the resignation of several from the association in protest at its contents. Thousands of copies of the booklet on sale throughout the country will not be withdrawn. Of the 250,000 copies printed 200,000 had been issued. The BMA is thus left with 50,000 copies on its hands. These may be released later by the Council.

"All we did," said Dr. de Kok, "was to state the facts given in statistics. We wanted to help all young people, instead of only the good ones." She said she was angry and disgusted by the BMA's action. Dr. Chesser said: "I am amazed that the BMA should have done this. I am at a loss to understand it. Psychologically, I cannot see how the booklet could be harmful to anyone. I feel strongly that medical men, indeed everyone, should have the right to express their views, even though they are not majority views. I fully respect religious views in this matter but the BMA should not have acted on the complaints of a few doctors." Discussing the booklet the *Church Times* says: "There must be many Christian doctors who will loathe and abominate the whole thing. If the BMA wishes to convince the country that there is no longer any connection between medical and Christian morality, it is certainly going the right way about it."

State Scheme for Chiropody.—Chiropody is to be added to the healing facilities available under the National Health Service. Mr. Walker-Smith, Minister of Health, said that he was now ready to approve proposals by local health authorities who wished to provide a chiropody service. Local health authorities will be requested to give priority to the elderly, the physically handicapped, and expectant mothers in the early years of the new service.

Increasing Fertility.—According to a report published by the General Register Office (Fertility Report, Her Majesty's Stationery Office, 1959) the fertility of Britain is increasing. In 1934 the average size of the family had fallen from six, the figure in the 1870's, to two children. With the start of World War II in 1939 there was a steep decline. By 1942 the rate was rising again, and by 1947 the birth rate was at its postwar peak. Since 1952 the fertility rate has been fairly stable. The report reveals that there are about 7,500,000 married women in England and Wales under the age of 50. Among all married women under 50 about 22% are childless, 30% have had one child, 26% two, 12% three, and 10% four or more children. The largest families are found among unskilled workers, where the average size of the family is 2.64 children. The smallest families are those of white collar workers, with 1.49 children, and the professional and managerial class, with 1.51. The area of highest fertility is in Merseyside, near Liverpool, followed by the north of England and north Wales.

Poliomyelitis Vaccine.—A fourth or booster dose of poliomyelitis vaccine for adolescents and adults was recommended by a group of Medical Research Council workers (*Brit. M. J.* 1:609, 1959). This has already been investigated in young children, and the favorable results obtained in this group have now been confirmed in those of older age groups. A booster dose of vaccine was given to 111 adolescents and adults drawn from a population of medical students, research workers, and boys from Epsom College, near London. This was given 6 to 12 months after primary immunization had produced a good response to poliovirus types 2 and 3. All but four of the subjects still had detectable antibody induced by their initial course of vaccination, but with type 1 about a third of those immunized had lost their antibody, and these responded poorly compared with those in whom it was still present. In those who responded poorly to type 1 a fourth dose of vaccine produced a booster response to this type. The MRC workers stated that it was probable that in the age groups studied at least a threefold increase in the amount of type 1 antigen in poliomyelitis vaccine would be necessary to give satisfactory antibody responses after three doses in all subjects.

Budgerigars and Poliomyelitis.—A year ago Sommerville reported that a budgerigar which had nipped the lip of a boy who later died from poliomyelitis had carried poliovirus type 1. He now reports that attempts to infect other budgerigars with the virus were unsuccessful, although the birds became ill between 15 and 21 days after inoculation (*Lancet* 1:495, 1959). A postal survey of 224 families in which there had been a known case of poliomyelitis revealed that 56 kept pet budgerigars and that in 17 instances the birds died at about the same time as a child in the house contracted paralytic or nonparalytic poliomyelitis.

Dick and co-workers of Belfast also investigated the possibility that budgerigars may carry and transmit poliovirus (*Lancet* 1:497, 1959). They found that the birds were resistant to infection with 11 strains given by the oral and intracerebral routes. Polio-

virus neutralizing antibody was absent from the blood of 50 budgerigars, and birds were never found with residual paralysis. It was therefore concluded that they do not often become infected with or paralyzed by polioviruses and that they are unlikely to be of importance in the spread of the disease. This does not rule out the possibility that budgerigars may occasionally become infected by people excreting poliovirus and then later transmit the virus to other human contacts. The results of an inquiry into the illness of budgerigars in the household of patients suffering from poliomyelitis yielded surprising results. Of 30 patients who kept budgerigars 3 reported the death of at least one bird within two weeks of the onset of their illness. The authors considered that this was sufficiently suggestive to warrant continued search for an association between human poliomyelitis and poliovirus infection in budgerigars.

Advance in Cardiac Surgery.—An editorial in the *British Medical Journal* of Feb. 28 comments on an operation which was performed by a team under the direction of C. E. Drew in Westminster Hospital on a child, aged 4, who underwent successful repair of ventricular and atrial septal defects, with complete circulatory bypass for 45 minutes. Postoperative recovery was uncomplicated. By incorporating a new technique for cannulating the pulmonary artery, the patient's lungs were used to oxygenate the blood, thus eliminating the machine-oxygenator, which is the main source of serious complications. By means of the purely cardiac bypass so produced it was possible to induce deep hypothermia—below 15 C (59 F)—by extracorporeal cooling of blood flowing from the left atrium. At this low temperature it was possible to shut off completely all circulatory flow during the actual repair of the intracardiac defect. Technical details of the development of the method in dogs were given by G. Keen.

The left femoral artery was exposed, then, after thoracotomy and the administration of heparin, catheters were inserted into the right and left atria and a cannula was placed in the left femoral artery. About 25% of the left arterial flow was drained into a well, pumped through a heat exchanger at 2 to 4 C, and returned to the left femoral artery. The body temperature dropped rapidly. When about 25 C (77 F) was reached the cardiac action became impaired and the circulation fell markedly. At this point a small stab wound was made in the upper part of the right ventricle and a catheter was introduced through the pulmonary valve into the pulmonary artery. The right atrial flow (the whole venous return) was then allowed to drain into a second well, whence it was pumped through the lungs via the pulmonary arterial cannula. The left-sided bypass was fully opened and the rate of the pump was increased. Cooling continued until the body temperature was below 15 C (59 F). The pumps were then turned off and artificial respiration discontinued. The venae cavae were closed by tapes, and the heart was drained. Cardiotomy was then performed and the intracardiac defect repaired. On completion of this the action of the heat exchanger was reversed to warm the blood until normal body temperature was approached.

Germ Warfare.—In February Dr. Barnet Stross asked the Secretary of State for Foreign Affairs to arrange a conference of the great powers to discuss the abolition of stocks of toxins, viruses, and chemicals that might be used in warfare, and the cessation of their manufacture. Mr. Robert Allan, Under Secretary of the Foreign Office, agreed that it would be highly desirable to eliminate this threat, but believed that an agreement to stop making tests of nuclear weapons should be accomplished first. He also told Dr. Stross that the existing international agreements having a bearing on bacteriological or chemical warfare that were enforceable in the United Kingdom were those of the Geneva Protocol of 1925 and the Hague Convention of 1907. Mr. J. Stonehouse asked the Minister of Defense what supplies of botulin were available in this country as part of the defense program and what scientists he had appointed to advise him on the use of this weapon. Mr. Sandys replied that Britain was not developing any such weapon.

Early Operation to Be Telecast.—The question of broadcasting a warning for the benefit of squeamish viewers before a television program about leg amputation in 1846 was considered by the BBC. The program is a documentary entitled "They Made History." A BBC spokesman did not think such a warning would be necessary, as the actual severing of the leg would not be shown, but a short explanatory statement was to be made at the beginning of the program. The scene was to be reconstructed exactly as it was on the afternoon of Monday, Dec. 21, 1846, in the University College Hospital, London, when Robert Liston became the first surgeon in Europe to use ether as an anesthetic. The somewhat primitive operating room was recreated from contemporary descriptions and old photographs. Replicas of apparatus and equipment were specially made for the production from drawings and descriptions in medical journals. An exact copy, complete with straps and straw mattress, of the actual operating table kept in the University College Museum was made, and genuine mid-19th-century surgical instruments were obtained on loan.

CORRESPONDENCE

THERAPY IN BRONCHIAL ASTHMA

To the Editor:—The article entitled "Current Status of Bronchial Asthma," by Segal, in THE JOURNAL, March 7, 1959, pages 1063-1071, appears as an authorized publication of the Council on Drugs. Surely such an article must, by inference, contain a distillation of the country's best thinking on the subject. A real responsibility is implied here, because the uncritical reader has no choice but to accept the contents dogmatically. The article does not meet this responsibility. The fundamental fault with this, as with many similar articles not quite as authenticated, is the complexity which they endow on the symptomatic treatment of bronchial asthma. I submit that the principles of treatment are simple and that the real talent lies in discontinuing therapy with numerous and often harmful medicaments and resisting the dangerous temptation to sedate the seriously ill asthmatic patient.

The most fundamental principle in the treatment of bronchial asthma is hydration. The cardinal cause of status asthmaticus is dehydration producing tenacious mucous plugs which can only be removed by fluids in large quantities—orally given in the average asthmatic and intravenously given in the case of status asthmaticus. If the average physician could be impressed with this single fact, the treatment of asthma would be enormously improved. This point is substantially ignored in the article.

I am disturbed also over the rather permissive attitude towards sedatives, especially meperidine (Demerol) hydrochloride. This drug is no different from other opiates in the euphoria it produces and the consequent indifference to cough stimuli. Failure to cough is serious, sometimes fatal, in the asthmatic because of the retained secretions, and I am one of many who have seen a fatal issue laid at the door of meperidine.

I strongly disagree with Dr. Segal, who believes that the "search for the responsible agents is difficult and often completely unsuccessful." He speaks as a specialist in chest disease and is concerned with the lungs. As an allergist I can state with confidence that the responsible agents are usually found when one assesses the total allergic patient and that etiological treatment based on such agents is still the most successful form of treatment known.

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To the Editor:—The pertinent questions raised by Dr. Bookman concern hydration, use of meperidine, and the role of the allergist. The introductory remarks in the article, which was reduced in size because of limitations of space, referred to the effects of dehydration in the patient with intractable bronchial asthma. The discussion of the intravenous use of aminophylline described the continuous infusion technique with three liters per 24 hours of a solution of 5% dextrose in water with aminophylline for the hospitalized patient with intractable asthma. This therapy is designed to correct dehydration, supply needed dextrose, and administer aminophylline for bronchodilation. Patients who are receiving iodides are generally urged to take them with 8 to 10 oz. of water or a preferred beverage. I have always used a teaching aphorism that "the value of iodides in the patient with chronic bronchial asthma is proportionately increased by his fluid intake." Patients receiving oral steroids should empirically take 8 to 12 oz. of orange or cranberry juice daily for supplemental potassium and fluid replacement. Correction of dehydration is indeed a very important factor of therapy.

There is a specific place for the use of meperidine in the patient with a severe acute attack or in status asthmaticus when the usual methods of treatment have failed. The value, limitations, and hazards of meperidine usage were clearly stated in the article. In the laboratory we have observed improvement in timed vital capacity and in pressure-flow rate relationships with reduction in the work of breathing in patients with chronic bronchial asthma. In acute studies with patients with the carbon dioxide retention syndrome (severe chronic pulmonary emphysema), we did not observe respiratory depression, increase in arterial carbon dioxide level, or drop in pH. I do not believe that the hazards involved with the judicious use of meperidine are any greater than with the use of a host of other drugs.

Finally, under my discussion of medical management, I stated the importance of allergic factors and the need for specific allergic therapy whenever possible. I believe that it is the opinion of most conservative, competent, and teaching allergists that because the search for responsible agents is frequently difficult and often completely unsuccessful, emphasis on the allergic approach to management should not exclude physiological therapy. A rational, combined approach brings the best results.

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MEDICOLEGAL ABSTRACTS

Libel and Slander: Qualified Privilege for Director of Nurses.—This was an action for libel by a private-duty nurse against the defendant hospital and its director of nurses. From a judgment in favor of the defendant the plaintiff appealed to the appellate court of Illinois.

The plaintiff, a registered nurse, was intermittently engaged as a private-duty nurse by various patients of the defendant hospital during the period from August, 1955, through June, 1956. She was a member of the Nurses' Professional Registry. During this period the defendant was the director of nurses at the hospital and was charged with the supervision of all nursing care, including that of private-duty nurses, administered to patients in the hospital. On three different occasions during the months of April and May, 1956, the defendant received reports of narcotics losses from the hospital pharmacist, each report indicating the loss of one 30-cc. vial of Demerol hydrochloride, a narcotic. After the third such report she started checking into the records of the nurses who had been on duty on the floor where the losses occurred. In checking the records of the plaintiff it was found that, on 22 or 23 prior instances, the plaintiff had failed properly to record the administration to patients of narcotics which, from the narcotics record, she had withdrawn from the supply on the floor. On three specific instances it appeared that the plaintiff had failed to record administering Demerol to a patient after having withdrawn the drug from the narcotics cabinet. Normal hospital operating procedures required that the nurse record on the narcotics record the withdrawal of any narcotic, and then record on the individual patient's record, or nurse's record, the administration thereof to the patient. Accurate records and a perpetual inventory of narcotics and the handling thereof are obviously necessary for many reasons, including the doctor's information, the patient's welfare, charting the patient, and inspection by the Federal Bureau of Narcotics. The plaintiff was an experienced nurse and knew the normal operating procedures. The defendant talked to the plaintiff and called some of the above derelictions to the plaintiff's attention, directing that henceforth she should not go into the narcotics cabinet unless another nurse was present.

When the case on which the plaintiff was then working terminated, the defendant called the Nurses' Professional Registry and asked that the plaintiff not be assigned as a private-duty nurse to the defendant hospital in the future. A few days later the Grievance Committee of the registry asked the defendant to put her request in a letter, which she did. This letter is the basis of the present case for libel. The letter stated, in part, that the defendant preferred in the future that the plaintiff not be sent on cases at the defendant hospital. Over a period of the past three months, the letter continued, three vials of Demerol had disappeared from the locked medicine cabinet on the floor where the plaintiff was on duty. In two instances the loss occurred on the 3 to 11 p. m. shift while she was on duty, and the other loss occurred on the 7 a. m. to 3 p. m. shift when she had changed shifts for a few days. Two incidents had occurred the previous winter when the plaintiff charted another medication on her patient's chart but was observed to have taken Demerol. The letter continued that the defendant had talked to the plaintiff about this loss of Demerol and felt that she had a most unusual and abnormal reaction. The letter also stated that the present request in no way reflected on the care given by the plaintiff to patients in the defendant hospital.

This letter was referred by the Nurses' Registry to the Grievance Committee of the Private Duty Section. Copies of the letter were sent to the members of that committee and to the plaintiff, but to no other person.

A privileged communication, said the appellate court, is one which, except for the occasion on which or the circumstances under which it is made, might be defamatory and actionable. We believe under the circumstances that the letter in question was written on a privileged occasion and is qualifiedly or conditionally privileged. Where circumstances exist, or are reasonably believed by the defendant to exist, from which he has an interest or duty, or in good faith believes he has an interest or duty, to make a certain communication to another person having a corresponding interest or duty, and the defendant is so situated that he believes it the discharge of his interest or duty or in the interests of society that he should make the communication, and if he makes the communication in good faith, under those circumstances, believing the communication to be true, even though it may not be true, then the communication is qualifiedly or conditionally privileged, even though the defendant's interest or duty be not necessarily a legal one but only moral or social and imperfect in character. The essential elements are good faith by the defendant, an interest or duty to be upheld, a statement limited in its scope to that purpose, a proper occasion, and publication in a proper manner and to proper parties only. In the absence of actual malice a communication may be qualifiedly privileged, if the other essential elements are present, even though it is not true, and even though it charges a crime;

but a communication loses its character as privileged and is actionable upon proof of actual malice. Both the person by whom and the person to whom the communication is made must have an interest or duty in respect to the matter in order to render it a qualifiedly or conditionally privileged communication. It is clearly settled that a communication respecting the charter of an employee or former employee is qualifiedly privileged if made in good faith by a person having an interest or duty in the premises.

Is the letter itself sufficient competent evidence tending to show actual malice? We think not, said the court. The plaintiff urges that the letter imputes to her the commission of a crime—stealing Demerol from the hospital. We believe it will not fairly bear that construction. It does not say that. "Disappear" does not mean stolen. "Taken" does not mean stolen. And the last paragraph of the letter, stating that this in no way reflects on the care the plaintiff has given patients, is a fair expression of good will, not ill will, and at least is hardly the thing to be expected from a defendant motivated by malice.

There being no competent evidence in the facts and circumstances exclusive of the letter itself, or in the letter itself, tending to show malice, the court of appeals held that the trial court did not err in allowing the defendant's motion for a directed verdict. The judgment for the defendant was, therefore, affirmed. *Judge v. Rockford Memorial Hospital,* 150 N. E. (2) 202 (Ill., 1958).

Governmental Hospitals: Denial of Surgical Privileges.—This was an action for a declaratory judgment to the effect that the plaintiff was entitled to major surgical privileges at the Jackson Memorial Hospital, Miami, Fla. From a judgment in favor of the plaintiff the defendant appealed to the district court of appeals of Florida.

The plaintiff, a licensed physician practicing in Dade County, Florida, applied for major surgical privileges at the Jackson Memorial Hospital in 1952 and again in 1955, but both applications were denied on the ground that he had failed to meet the qualifications and standards set up by the hospital's medical board. The plaintiff contended that such denials were arbitrary, capricious, unlawful, and discriminatory.

Jackson Memorial Hospital is owned and operated by Dade County and the Board of County Commissioners through a medical board responsible to the county commissioners. The hospital is supported by both public funds and paying patients. The bylaws of the medical staff set forth nine requirements for the appointment of a physician to the medical staff, and the defendants contended that the plaintiff did not meet the following requirements: "4. He must be a graduate of an approved medical school. 5. He must have had an internship of at least one year in a hospital approved by the Medical Board. . . . 8. He must be competent in the line of work he proposes to do."

The first question raised on appeal was whether or not a hospital supported by public funds may require of a physician, as a condition to the use of its facilities for major surgery, standards higher than those required by the state for a medical license. In his brief the plaintiff conceded that a public hospital may require higher standards for major surgery than are required for a medical license, but he contended that such rule was not applicable to him. He urged that since the hospital was supported by public funds it could not arbitrarily exclude a licensed physician from the use of such hospital facilities for the physician's own private practice. The court said that the law is well settled that a municipality may regulate and control the operation of a hospital provided by it and that, in the exercise of such power, it may exclude those not shown to have met its requirements. Furthermore, it is not incumbent upon the city to maintain a hospital for the private practice of medicine, nor does a physician have a constitutional or statutory right to practice his profession in the city's hospital. Even though the hospital be a public hospital, the plaintiff as a physician had no right per se to practice in the hospital, it being a privilege rather than a right. In this case, concluded the court, there was no showing that the conditions or requirements laid down by the medical staff for the admission of a physician to staff privileges or for major surgical privileges are unreasonable, discriminatory, or arbitrary, or that they have been so applied to the plaintiff.

The second question urged error in rulings on the facts. The testimony showed that the plaintiff had received a medical degree from a college which had never been accredited and which closed three years after his graduation. Secondly, the testimony showed that the plaintiff interned in a hospital which was not accredited for the purpose of an internship program. Lastly, the testimony disclosed that the surgical experience and skill of the plaintiff fell short of convincing either friends or casual acquaintances that he possessed the requisite qualifications for the exercise of major surgical privileges.

It was the burden of the plaintiff to prove by a preponderance of the evidence that he qualified under the requirements set out and that such requirements were being arbitrarily and discriminatorily applied to him. This, concluded the court, the plaintiff failed to do. The judgment in favor of the plaintiff was, therefore, reversed. *Dade County v. Trombly,* 102 So. (2) 394 (Fla., 1958).

THE LEISURE CORNER

CERAMICS

The making of ceramics is one of the oldest occupations in the world. Ceramic articles dating from as long ago as the Stone Age, 10 to 20 thousand years ago, have been found, and some of them are still in good condition. The crude Indian bowls of North America, the funeral urns of prehistoric China, and the attractive votive goblets of Egypt are among the many historic pieces archeologists have unearthed. In modern times the advance of scientific knowledge has led to new ceramic products and new methods of manufacture.

The word ceramics is derived from the Greek *keramikos*, meaning potter's clay. In a more technical sense ceramics includes all objects, used for practical or ornamental purposes, which are made from clay or mixtures of clay and other substances and baked or fired to hardness; porcelain, earthenware, stoneware, and terra cotta are types of ceramics. The art is determined by the basic chararteristics of clay. Clay is plastic; it can be molded or modeled when it is moist. It retains its form when dry, and it becomes rock-hard when exposed to very high temperatures. After it is thoroughly dried or baked it is among the most durable of substances. Clay consists of silica, alumina, and water in chemical combination. Other chemicals, mainly earth oxides, are found in clay and determine its color, plasticity, firing properties, and economic utility.

Modeling by hand is one way of working with clay, hand pressing is another, and a third involves use of the potter's wheel. The basic sequence of steps in making a ceramic article is as follows: (1) constructing the object while the clay is moist; (2) drying the object; (3) first firing; (4) applying the glaze, or underglaze color and glaze; (5) second firing; (6) applying the overglaze color on the glazed object; and (7) applying the overglaze to the object for the third and final firing.

Making small ceramic articles that can be held in the hand appeals to most beginners. Take a chunk of clay, cut it in two against a wire, pound it against a board to release all the air bubbles, and the first step toward creation is taken. A great deal of patience is required to learn how to make pottery. After you have made the model out of clay, having finished it to your own satisfaction, the article must stand for several days until it is thoroughly dry and prepared for firing. After baking and cooling the ceramic object appears dull and a little rough. It must be painted with a glaze before the second firing. Each ingredient of the glaze powder should be measured with care. After this is done the powders are ground with mortar and pestle for about 20 minutes and run through a sieve to remove any lumps, water is added until the mixture is moist, and 4 tablespoons of gum is added. The glaze is then applied to the clay model with a brush.

The story of glazing is itself interesting. The technique of glazing tiles was known in Egypt as long ago as 5500 B. C. In the 18th dynasty, some time between 1540 and 1350 B. C., magnificent glaze colors were in use, notably purple, violet, red, orange, yellow, green, and an almost pure white. These colors were painted on vases and other types of pottery, which remain some of the finest pieces of ceramic art known to man. At present, the introduction of glazes with novel coloring combinations and unprecedented tactile effects occupies the attention and efforts of many ceramic artists, chemists, and engineers. Industrial glazes are applied by dipping, pouring, spraying, or painting. An unfired glaze, when moist, is usually off-gray; consequently, the ceramic hobbist should be aware that in order to establish the appearance presented after the piece is matured in the kiln the glaze must be fired in advance.

The use of the potter's wheel is an ancient technique. The first potter's wheels were probably crude balanced stones, rotated by hand. Various types have been introduced in different countries. The kick wheel is the oldest and simplest form in use today; the seated operator kicks a fly wheel with his foot while manipulating the clay on the throwing head with his hands. The electrically operated wheel, used by professional workers who must turn out a large volume of merchandise, represents a great advance in ceramics. Electric wheels have various attachments for catching clay drippings, for providing water, and for hand rests. The numerous ceramic articles made industrially today play an important role in modern life. Some of these articles, such as fine china, are luxuries, but others, such as firebrick, sewer pipe, and enamel for refrigerators and kitchen utensils, are necessities.

Many doctors enjoy creating ceramic objects as a hobby. Persons who have a definite feeling for clay and an ability to express themselves imaginatively in plastic forms can derive pleasure not only from creating a brand-new ceramic design or making many reproductions of models but also from presenting these as highly personalized gifts to friends and associates. The amateur devotee of ceramics will find that the more he learns about this art the more fascinating he finds it to be. The doctor interested in ceramics discovers that there is "life" in clay and that it can play strange tricks under the influence of "fire." The behavior of color is as capricious as that of human beings. There is no end to the number of articles that can be made for home, office, and personal adornment. Once started, the ceramic hobbyist can find an endless variety of things to create. The most mundane object can be converted to a thing of beauty. Ceramics answers not only the need for self-expression but also the problem of what to give friends who have everything.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Functional Colopathy or Irritable Colon with Special Reference to Treatment. E. Gripwall. Nord. med. 61:55-57 (Jan. 8) 1959 (In Swedish) [Stockholm].

During the past year a thorough test of Belladenal Retard, a new sustained-action antispasmodic, was carried out in the medical department of Södertälje Hospital in 35 patients with history of variable psychosomatic disorders of the digestive canal for many years. There were 28 cases of typical irritable colon syndrome, 1 case of duodenal ulcer, 2 cases of gastritis, 1 case of cholelithiasis, and 2 cases of colitis. Most of the patients had previously been treated with the usual antispasmodics. Treatment with Belladenal Retard was given from 1 to 9 months. The side-effects were slight. Approved dietary and hygienic measures were prescribed at the same time. At the end of treatment 17 patients were completely free from symptoms and 15 were improved; 1 patient showed negligible improvement and 2 no improvement. In some cases the improvement continued after withdrawal of the medication.

Systemic Lupus Erythematosus Responding to Chloramphenicol. R. Wells. M. J. Malaya 13:165-170 (Dec.) 1958 [Singapore].

The 2 patients presented were observed in the department of medicine of the General Hospital in Singapore. One was a 30-year-old Chinese housewife, the other a 41-year-old Chinese clerk. The essential complaint was fever of unknown etiology, and examinations of the sternal marrow at the time of admission showed abnormal myelocytes with eccentric nuclei and central zones of pink-staining cytoplasm. These first suggested the diagnosis of disseminated lupus erythematosus, but in the absence of any typical L. E. cells it was not thought justified to treat the patients on that basis. Treatment with chloramphenicol was instituted in the first patient on the basis of an indefinite diagnosis of atypical typhoid. This patient experienced 2 remissions on chloramphenicol therapy. The second patient had one similar remission on chloramphenicol, and it is difficult to believe that the 3 remissions were fortuitous. Investigation failed to show any evidence of concomitant bacterial infections which might have explained the responses to an antibiotic, and it is felt that in both patients the diagnosis of lupus erythematosus explains their illnesses.

When L. E. cells were finally found in the first patient, she was first given cortisone, but later prednisolone was found to be more effective. When the second patient, who had remained well for 3 months after his chloramphenicol-induced remission, was readmitted, he had a typical lupus erythematosus "butterfly" rash over his nose and cheeks and was found to have L. E. cells in his bone marrow and peripheral blood. He responded quickly to prednisolone therapy and has since had no further relapses.

Since observing the atypical myelocytes in these 2 patients, the diagnosis of lupus erythematosus in 2 further cases was first suspected by the chance finding of atypical myelocytes in bone marrow preparations, and in both cases the diagnosis was later proved to be correct. It is possible that the appearance of these atypical myelocytes in the bone marrow in lupus erythematosus may be of diagnostic value at an earlier stage of the disease before the development of typical L. E. cells. Microscopic appearances suggest that these atypical myelocytes do not develop as a result of phagocytosis of erythrocytes and do not represent the typical L. E. phenomenon in myelocytes.

Peptic Ulcer in the Elderly. A. I. Friedman. Am. J. Gastroenterology. 31:15-22 (Jan.) 1959 [New York].

In the 62 patients, over 60 years of age, who received hospital treatment during the years from 1953 to 1956, the diagnosis of peptic ulcer was confirmed by clinical, roentgenologic, and/or pathological evidence. The group included 44 patients with duodenal ulcer, 15 with gastric ulcer, 1 with multiple gastric and duodenal ulcers, and 2 with anastomotic ulcer. The last 2 patients were both men, and in one a recurrence developed after a gastroduodenostomy (Billroth I) and in the other after a gastrojejunostomy (Billroth II). In all, there were 46 men and 16 women. More than half of the patients apparently experienced their first symp-

The place of publication of the periodicals appears in brackets preceding each abstract.

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toms of peptic ulceration after age 55. Complications were present in 39 of the patients, the most frequent being hemorrhage, which occurred in 29. Perforation occurred in 7, and obstruction in 3 of the patients. The fact that the sex ratio of duodenal to gastric ulcer approached unity in those with acute symptoms is an interesting feature of this age group.

Operations were performed on 10 patients—subtotal gastrectomy (5), gastroenterostomy with vagotomy (2), pyloroplasty (1), and simple closure of a perforation (2). One of the 10 patients died on the 6th day after operation, but, in addition to his bleeding duodenal ulcer, he also had the sequels of a cerebrovascular accident. Thirteen of the patients died while receiving medical treatment, most of them from hemorrhage or perforation. The author feels that this high mortality rate during medical treatment (25%) and the low mortality during elective surgery for ulcer justify a more liberal use of surgical therapy for the complications of peptic ulcer in elderly patients. The peptic ulcer patient over 50, who presents with hemorrhage or perforation, should be subjected to surgical treatment whenever conditions permit.

Bioassay of Urinary Catecholamines in Cases of Pheochromocytomas: Its Diagnostic Value as Compared with Clinical Signs, Roentgenologic Aspects, and Pharmacodynamic Data. L. De Gennes, H. Bricaire and J. Hazard. Presse méd. 67:83-87 (Jan. 17) 1959 (In French) [Paris].

The urinary excretion of catecholamines was studied by bioassay in patients with persistent arterial hypertension or with intermittent paroxysmal hypertension for the diagnosis of pheochromocytoma. The presence of such a tumor was particularly suspected in patients with fluctuations in blood pressure. Among 75 patients on whom the authors have been able to carry out several bioassays of urinary catecholamines, they found 6 cases of pheochromocytoma. Five were discovered at operation, and one at autopsy. In addition to these 6, there were 2 patients in whom the diagnosis was considered probable. The 8 cases are here described. The excretion of catecholamines in micrograms per day was estimated at 360, 1,350, 400, 2,400, 1,000, 180, 275, and 55. In the last 2 patients definitive diagnosis was impossible because no operation was done. The authors consider a daily urinary output of 50 to 55 mcg. of catecholamines normal.

The authors also applied a test with lyophilized Regitine Methanesulfonate, a potent adrenergic blocking agent, which blocks both epinephrine and the effects of sympathetic nerve stimulation. It is emphasized that the drug should be administered by the intravenous route in daily doses of 5 mg. in the adult, and it is effective only if no sedatives were given to the patient 24 hours before the test. A positive hypotensive response consists of a fall greater than 35 mm. H_2O systolic and 25 mm. H_2O diastolic in less than 2 minutes after the injection, and may be then considered theoretically as diagnostic of pheochromocytoma. The test is not dangerous and is easly done; the only side-effects observed were mild discomfort and transitory tachycardia.

Extraperitoneal pneumography combined with urography and tomography was performed on 36 patients, but despite improvements in technique and reading frequent mistakes were made by overestimating the size of the shadows. The clinical study and bioassays of these patients with pheochromocytomas showed that the demonstration of urinary catecholamines is a most reliable and informative diagnostic method which should be conjointly used with pharmacodynamic tests and extrapulmonary pneumography.

Behavior of C-Reactive Protein in Malignant Blood Diseases, with Special Regard to Hodgkin's Lymphogranuloma. V. Pecori, E. Turrisi, P. Altucci and G. Buonanno. Riforma med. 73:1-3 (Jan. 3) 1959 (In Italian) [Naples].

C-reactive protein tests were given to 31 patients, 5 with chronic myeloid leukemia, 3 with chronic lymphatic leukemia, 3 with acute histiocytic leukemia, 1 with lymphoblastic leukemia, 19 with malignant lymphogranuloma (Hodgkin's disease), and 1 with tuberculous lymphadenitis. The patients were between 15 and 55 years of age. The test was performed with a capillary tube, 90 cm. long and 0.4 mm. in diameter, which was filled to one-third of its capacity with C-antiserum and to one-third with the serum to be examined. The tube was then turned repeatedly to mix the 2 serums, and then one of the 2 openings of the tube was sealed with a flame. The first reading was taken after 2 hours of incubation at 37 C temperature; the second reading was taken 12 hours after the first reading, during which time the tube was placed in a refrigerator at 4 C temperature. A 1-mm. column of precipitate was called a 1+ and so on. No precipitation of C-antiserum occurred when serum from normal persons was used. The C-reactive protein test gave positive results in all patients with Hodgkin's disease, and the intensity varied between 3+ and 4+. Most of the patients with high C-reactive protein values presented also high erythrocyte sedimentation values and high diphenylamine reaction values. The 2 patients with Hodgkin's disease whose C-reactive protein test was less than 3+ were passing through at the time of the test a remission of the symptoms; they presented no fever, and the size of the lymph nodes had diminished markedly. High positivity was also noticed in patients with generalized lymphogranuloma. The highest posi-

tivity was noted in one patient with multiple lymph node localizations, marked hepatosplenomegaly, and metastases in the cerebrospinal system. Roentgen therapy in patients with localized forms of the disease caused a diminution in the intensity of the test. No therapy had any effect on the intensity of the test in patients with generalized lymphogranuloma. The C-reactive protein test gave positive results in patients with Hodgkin's disease in a very early stage. In some patients highly intensive positive values were obtained by giving the test 1 or 2 days after the occurrence of the first clinical symptoms of the disease. The results of the C-reactive protein test obtained in patients with malignant blood diseases other than Hodgkin's disease were not constant, and the authors found that the test was not of too great importance in such cases. The authors point out the value of the test as a means of determining the course of a specific blood disease. Remission of the symptoms always corresponded with a diminution in the positive values of the test.

SURGERY

Cardiovascular Surgery in a Children's Hospital: I. Acyanotic Lesions: A Review of 241 Operations. R. Ash, J. Johnson, C. E. Koop and others. J. Pediat. **54**:133-142 (Feb.) 1959 [St. Louis].

Of 434 cardiovascular operations performed at the Children's Hospital of Philadelphia between 1947 and 1958, 241 were performed on 239 acyanotic children, 6 of whom died, representing an operative death rate of 2.5%. Of the 239 patients operated on, 160 had a patent ductus arteriosus with a continuous murmur. Ligation with 3 silk ligatures was used in 150 of these children. There was no operative death and not a single instance of recanalization of the patent ductus arteriosus. In 10 additional children with patent ductus arteriosus and with pulmonary hypertension, the diagnosis was made, in the absence of a continuous murmur, by an arteriogram in 4 and by cardiac catheterization in 6. There was one operative death, and one patient, in whom pulmonary hypertension persisted postoperatively, died 14 months after the operation. Twelve patients with vascular rings constricting the trachea and esophagus were operated on, with 3 deaths; 2 of the deaths occurred in newborn infants. Thirty-seven operations were performed for coarctation of the aorta, with one death. The authors believe that it is important to operate on patients with coarctation of the aorta during childhood when the arteries are pliable and an anastomosis can almost invariably be performed without the use of grafts. Thirteen patients with atrial septal defects were operated on, and 5 of these had anomalous venous drainage of right pulmonary veins in addition to their septal defects. The surgical intervention was performed under direct vision by means of hypothermia and circulatory occlusion, intermittent when necessary. There were no deaths, and the results were gratifying. Two boys with constrictive pericarditis were operated on, with good results. An arteriovenous fistula involving the left vertebral artery was resected in a 5-year-old boy in whom the site of the fistula had been verified preoperatively by angiocardiography.

Mitral Stenosis Treated by Mitral Commissurotomy: A Medical Review of Surgical Results. E. Gubbay and A. Vineberg. Canad. M. A. J. **80**:168-173 (Feb. 1) 1959 [Toronto].

The authors report on 103 consecutive patients with mitral stenosis treated by mitral commissurotomy at the Royal Victoria Hospital in Montreal between 1954 and 1956. Ninety-five of the 103 patients were followed up for at least one year. Of the 95 patients, 67 had pure mitral stenosis, and 28 had mitral stenosis and regurgitation. Of the 67 patients, 39 obtained excellent results, 18 good results, 8 poor results, and 2 died. Of the 28 patients, 5 obtained excellent results, 13 good results, 6 poor results, and 4 died. Of the total number of 6 deaths, 2 were operative deaths, representing an operative mortality rate of 2%. The total number of 6 deaths is not prohibitive in view of the great benefits that may be conferred by the operation. The results obtained and a review of the literature lead to the following conclusions. The operative risk is small and could be reduced further if patients were operated on before they reach the late stages of huge size of the heart, immobile mitral valves, or incompletely controlled heart failure. The results are worth while, even in those with mitral regurgitation, provided that there is sufficient stenosis to relieve and the valve leaflets are mobile.

Segmental Resection for Pulmonary Tuberculosis: An Analysis of 335 Cases. V. O. Björk. J. Thoracic Surg. **37**:135-147 (Feb.) 1959 [St. Louis].

The author reports on 335 patients, between the ages of 9 and 64 years, with pulmonary tuberculosis, who underwent segmental resection at the thoracic surgical clinic of the University Hospital in Uppsala, Sweden. The indications for segmental resection were tuberculous cavitation in 314 patients (94%), bronchiectasis with positive sputum in 5, bronchial stenosis in 2, tuberculous empyema with bronchial fistula in 2, and tuberculoma in 12. There were 5 operative deaths (an operative mortality rate of 1.5%) and 7 late deaths. Of the surviving 323 patients, 170 were followed up for periods ranging from 1 to 6 years; 160 (94%) of these were considered cured, since they fulfilled all the following criteria: negative results from guinea-pig tests on gastric washing and sputum, as well as negative cultures on sputum and a negative direct smear on 3 consecutive days, and no active disease found at roentgenologic examination. One hundred forty-six (92%) of the 160 patients were

working full time one year after the operation. The best cosmetic result and the best arm movements were obtained when the resection was performed without additional thoracoplasty. Mobilization of the diaphragm gave the best cosmetic but the worst functional result of the various space-diminishing procedures used in addition to segmental resection. Osteoplastic thoracoplasty gave a better cosmetic result and better arm movements when compared with thoracoplasty by rib resection. There was a higher incidence of postoperative pain in the patients on whom thoracoplasty by rib resection was performed. The encouraging late functional results proved that segmental resection can be performed with a minimal loss of function. The contralateral lung withstood the resection very well.

Bronchopulmonary Moniliasis: Treatment by Segmentectomy. J. H. Kennedy. J. Thoracic Surg. 37: 231-235 (Feb.) 1959 [St. Louis].

A 35-year-old man was admitted to Scripps Memorial Hospital in La Jolla, Calif., complaining of recurrent hemoptysis for 2½ years. There were no tubercle bacilli in the sputum on cultural examination of 3 specimens, and 3 specimens of sputum of the same unusual character with small black particles in them grew pure cultures of Candida albicans on modified eosin–methylene blue medium. In a roentgenogram of the chest a cavity was observed in the left midlung field; in the lateral view it appeared to lie in the superior segment of the left lower lobe. Thoracotomy was performed through the 5th intercostal space, and the superior segment of the left lower lobe was resected with ligation of the segmental vessels and closure of the segmental bronchus by interrupted sutures. The postoperative course was uneventful.

Gross examination of the operative specimen showed a thick-walled cavitary lesion measuring 3 cm. in maximal diameter. Microscopic examination revealed that this cystic lesion was partially lined with bronchial mucosa showing foci of squamous metaplasia. The cavity communicated with a bronchiole. Most of the cystic area was lined by fibrous tissue, into which there was a marked chronic inflammatory cellular infiltration. The fibrous tissue was covered with a hemorrhagic exudate. Within the cavity of the lesion, definite spore forms with mycelia were detected with periodic acid-Schiff stain. These fungi were consistent with C. albicans.

Four months after the operation the patient felt well and had returned to work, but he noticed a return of small amounts of mucoid sputum, containing small black particles. Culture of the sputum was again positive for C. albicans. The patient then was treated with inhalation therapy in which a bronchodilator and an aerosol of brilliant green dye in a 1 to 200,000 dilution by positive-pressure therapy were used for one month. The patient has now been well for one year, raises no sputum, and has had no further bleeding episodes; the small amount of mucoid secretion which he raises from his bronchial tree shows no cultural evidence of fungi. It is believed that this is the second report of successful surgical treatment of bronchopulmonary moniliasis.

Results of Hypophysectomy in the Treatment of Metastatic Mammary Carcinoma. O. H. Pearson and B. S. Ray. Cancer 12:85-92 (Jan.-Feb.) 1959 [Philadelphia].

This report is concerned with 218 patients with metastatic mammary cancer, who were subjected to hypophysectomy by transfrontal craniotomy between March, 1954, and March, 1958. The results obtained in the first group of 109 patients, who had a minimum follow-up of 17 months are presented, but data on the second group of 109 patients are also considered to some extent. The operation was well tolerated, and most patients were ambulatory in 24 to 48 hours. The average period of hospitalization for ambulatory patients was about 10 days. The hormonal replacement therapy after the operation consisted of 37.5 mg. of cortisone and 120 mg. of desiccated thyroid by mouth daily. Some patients required posterior pituitary powder by nasal insufflation for control of thirst and polyuria. During periods of stress, the patient usually required increased cortisone replacement. This regimen did not constitute a significant burden for the patient. Contrary to some notions, the patient who has undergone hypophysectomy has a normal appearance and normal mental and physical functions, and he or she can lead a normal life.

The mortality rate from all causes was 7.3%. Although the number of deaths in the second group of 109 patients was the same as that in the first, only one death in the latter group was directly attributable to the operation. Autopsy examination revealed very extensive metastases in the 8 patients of the second group who died postoperatively. Approximately 50% of the first group of 109 patients obtained objective remissions, and 35% had remissions that have lasted 6 months or longer. A prior favorable response to oophorectomy was found to be of prognostic value in predicting a beneficial effect from hypophysectomy. In this group hypophysectomy yielded better results than did adrenalectomy.

Estrogen administration to 5 patients after hypophysectomy failed to induce exacerbation of tumor growth, suggesting that a factor from, or mediated by, the pituitary is necessary for estrogen stimulation of tumor growth. Human growth hormone administered to 5 patients after hypophysectomy appeared to induce stimulation of the tumor growth in 2 patients. These preliminary observations suggest that growth hormone may be an important endocrine factor in mammary cancer. Hypophysectomy is recommended as a practical,

worthwhile procedure in the palliative treatment of patients with metastatic breast cancer when adequate facilities are available to carry out this procedure.

Adrenalectomy for Disseminated Mammary Cancer: A Pilot Study of Sixteen Patients. R. C. Hickey. J. Iowa M. Soc. 49:83-87 (Feb.) 1959 [Des Moines].

The author assessed the effects of adrenalectomy on 16 patients with disseminated mammary cancer. The observation period ended in 1958 and covered more than 3 years in some cases; no patient has been followed up less than 6 months. The ages of the patients ranged from 30 to 69 years. No known antitumor therapy was used during the observation period. Oophorectomy was combined with adrenalectomy in most of the 16 patients. In 2 premenopausal patients oophorectomy essentially coincided with the adrenalectomy, and in postmenopausal patients combined oophorectomy and adrenalectomy were performed if a transabdominal adrenalectomy was done. Twenty-four hours preceding the operation the patients were given 50 mg. of cortisone orally every 6 hours, including 5 Gm. of sodium chloride and 2 to 5 mg. of desoxycorticosterone steroid administered by mouth. Two hours before the operation, 150 mg. of cortisone was given intramuscularly. Postoperatively, the regimen of 50 mg. of cortisone given intramuscularly every 4 to 6 hours was continued, supplemented by sodium chloride. The cortisone dosage was dropped gradually in 4 to 6 days to a maintenance dose of 37.5 to 50 mg. of cortisone in daily divided increments along with 3 Gm. of salt. In reducing the postoperative dosage cortisone was given alternately by mouth and intramuscularly to avoid crisis.

In 6 of the 16 patients with mammary cancer, objective improvement occurred with a striking degree of palliation for a mean duration of 12 months or longer. The relief of osseous pain was remarkable; soft-tissue masses regressed, so that palpable lumps became imperceptible and ulcers healed. The longest remission in a patient still doing well has been 38 months, and the shortest period of benefit has been about 6 months. One of the 16 patients experienced subjective improvement for 12 months, which extended her life to 15 months after the operation. Five of the 16 patients showed no improvement; 3 of them died within 2 months, 1 within 6 months, and 1 within 8 months after adrenalectomy. The emotional behavior of 1 of the 16 patients prevented classification of the result. There were 3 surgical deaths among the 16 patients. Death in one patient was caused by ventricular fibrillation and in the other by venous hemorrhage. The third patient died on the 4th day after a stormy postoperative hypoadrenal condition.

The selection of patients for adrenalectomy is partially a trial procedure. A patient must not be to ill for an operative procedure. Retrospective judgment indicates that 2 patients in this study who succumbed were too advanced in their illness to warrant such extensive therapy in the hope of palliation. The author may have erred in carrying out trials of exogenous hormonal administration in lieu of attempting early adrenalectomy in patients who awere failing clinically. It is, however, stressed that adrenalectomy should not be the first strong attempt at palliation. Other means should not be forgotten as one attempts to use or to judge hormonal manipulations or ablations. Focal roentgenologic treatment might well be used advantageously for fractures or osseous destruction, and the bypass of alimentary-tract obstructions may be essential. In judging the effects of adrenalectomy, one must accord other palliative procedures their proper place and merit, and the results of these must not be confused with or mistaken for the beneficial effects of adrenalectomy.

Results of Bilateral Adrenalectomy in the Management of Incurable Breast Cancer: Report of 155 Cases. A. A. Fracchia, A. I. Holleb, J. H. Farrow and others. Cancer 12:58-68 (Jan.-Feb.) 1959 [Philadelphia].

From January, 1951, through June, 1957, 155 patients with breast cancer who were subsequently subjected to adrenalectomy, alone or in combination with oophorectomy, were seen by the breast service of the Memorial Center for Cancer and Allied Diseases in New York. By analyzing the observations on these patients, the authors hoped to clarify further the indications and contraindications for adrenalectomy. It was found that the presence of circulating estrogen, estimated by quantitative analysis of urinary estrogens or by serial vaginal smears, is a valuable criterion for selecting patients for adrenalectomy. When there is no detectable estrogenic activity, ablative surgery is often followed by an unfavorable response, but the existence of estrogenic activity does not necessarily imply success after ablative therapy.

Patients who have benefited from the administration of testosterone or corticosteroids and those who have benefited from castration are more likely to respond favorably to adrenalectomy. The improvement is believed to be due to further suppression of estrogenic activity. Actively menstruating patients who have had a poor response to castration generally fail to derive benefit from adrenalectomy as well. Failure to respond to either androgens or corticosteroids does not preclude a remission with adrenalectomy. The estrogen provocative test is dangerous and not accurate in its predictions.

Adrenalectomy or oophorectomy combined with adrenalectomy produced valuable palliation for 6 months or longer in 54 (34.8%) of 155 patients in

this study. This was evidenced by tumor regression with concomitant symptomatic relief and prolongation of life. Patients with inflammatory carcinoma, recurrent involvement of breast, soft tissue, and skin, and bone metastases had the highest percentage of regression, lived the longest, and often were afforded the most satisfactory palliation. The exception in the series with bone metastases was the group of patients with hypercalcemia, none of whom had remissions extending beyond one year.

Although patients with visceral metastases had remissions less frequently and of shorter duration, some did benefit by adrenalectomy. Functional disturbance due to visceral metastases indicated a poor prognosis and usually a poor operative risk. None of the patients with symptomatic preoperative brain metastases from mammary carcinoma benefited from adrenalectomy. Patients (usually menopausal) who underwent oophorectomy and adrenalectomy simultaneously had a higher rate of remission than did those in whom castration was performed first and adrenalectomy later. Hypophysectomy after adrenalectomy seldom produced benefit and is probably not worthwhile.

Intrathoracic Meningocele. H. D. Hilton and H. H. McCarthy. J. Thoracic Surg. 37:261-268 (Feb.) 1959 [St. Louis].

The authors collected from the world literature 27 cases of intrathoracic meningocele in 14 female and 10 male patients, between the ages of 7 weeks and 63 years, and in 3 patients with incomplete data. They also report 2 additional cases of intrathoracic meningocele in a 44-year-old man and in a 37-year-old woman. Fourteen of the 27 patients underwent surgical correction; 4 of the 14 patients died of causes related directly to the operation. The authors' 2 patients underwent myeloplasty and recovered with satisfactory results.

Intrathoracic meningocele is an anomaly usually associated with neurofibromatosis and typical skeletal changes affecting the thoracic vertebrae. The condition may be suspected or even anticipated whenever a posterior mediastinal tumor occurs in conjunction with skeletal changes and neurofibromatosis. Intrathoracic meningocele represents a progressively expanding lesion, subject to rupture, and likely to exert pressure effects on surrounding structures. Consequently, the treatment of choice is surgical repair of the defect.

NEUROLOGY & PSYCHIATRY

The Use of Carbon Dioxide in the Treatment of Postconcussion Syndromes. M. M. Gilbert. J. Florida M. A. 45:891-895 (Feb.) 1959 [Jacksonville].

The author treated 136 patients with a postconcussion syndrome by carbon dioxide–oxygen inhalations. Eighty-four of these patients had had symptoms for less than 6 months before treatment was instituted, and 52 had had symptoms for from 6 to 50 months before the institution of therapy. One hundred per cent carbon dioxide and 100% oxygen in separate tanks were supplied and mixed through a Y-tube so that the concentrations of each gas could be modified. The patients first were given 100% oxygen for a few breaths until they adjusted to the mask and inhalations. Then, about 5% carbon dioxide was added to the mixture to permit the patients to adjust to the odor of the gas. After a few whiffs, the carbon dioxide concentration was increased gradually until there was a 50% oxygen and a 50% carbon dioxide mixture given at about 8 to 10 liters per minute from each tank. This resulted in a profound hyperpnea, and within 10 to 20 inhalations the patients usually lapsed into coma. The masks then were removed, and the patients were allowed to recover spontaneously. Treatments were given 3 to 5 times weekly.

Of the 84 patients, after a median number of 19 treatments, 62 made a complete recovery, and 22 were improved. The complete recovery rate was 74%, and the improvement rate was 100%. Of the 52 patients with long-standing symptoms, after a median number of 22 treatments, 32 completely recovered, 18 were improved, and only 2 were therapeutic failures. They showed a recovery rate of 61%, which compared favorably with the recovery rate of 63% for the group as a whole and with the recovery rate of 74% for the group of patients who had been ill for less than 6 months. Discounting those who discontinued treatment, the over-all improvement rate was 98%. It is presumed that physiological and cellular changes occurred in either the cerebral cortex or the nuclear masses of the brain stem, or in both, as a consequence of brain concussion, these changes resulting in the subjective complaints known as postconcussion syndrome. The concept has been proposed that the carbon dioxide–oxygen inhalations decreased the irritability of the presumably damaged nerve cells by increasing the carbon dioxide tension, increasing the oxygen tension, and increasing the cerebral blood flow. Presumably, correction of the underlying dysfunction and healing occurred. This clinical report might provide a reference and stimulus point for further studies in which more rigid experimental control could be obtained.

Early Experiences with Ultrasonic Irradiation of the Pallidofugal and Nigral Complexes in Hyperkinetic and Hypertonic Disorders. R. Meyers, W. J. Fry, F. J. Fry and others. J. Neurosurg. 16:32-54 (Jan.) 1959 [Springfield, Ill.].

In surgical investigations directed at the basal ganglions to alleviate the hyperkinetic and hypertonic features of parkinsonism, chorea, athetosis, and dystonia, the interruption of the pallidopallido-

fugal complex was found effective, but the technical difficulty of the operation limited its implementation. The development of a focused multibeam ultrasonic instrument, by means of which lesions of predetermined size, shape, and position could be produced in the brains of animals, offered a safer and more precisely controllable tool for neuroanatomic, neurophysiological, neuropathological, and surgical investigation. This instrument was adapted to human use.

Eleven patients with severe bilateral parkinsonism and one patient with severe bilateral tension athetosis have now been subjected to 15 ultrasonic treatments; 2 received bilateral ultrasonic irradiation, and 1 was treated again on the same side. The procedures were performed while the patients were under local anesthesia. All 9 parkinsonian patients irradiated at the ansa lenticularis alone were relived of rigidity. In 4 of these tremor was simultaneously abolished, and in 2 others it was initially a negligible feature of the clinical picture. Tremor persisted in 3 patients in whom it was subsequently eliminated by irradiation of more caudally situated sites. Within 3 weeks of the ultrasonic treatments, 5 patients exhibited some decrements in the gains realized during the treatments and for the ensuing several days. During the next few months it became evident that the decrements were transient in 3 patients but were enduring in the remaining 2. In view of the early post-treatment decrements and the primarily experimental objectives of the program, irradiation was performed in the 5 most recent treatments at the geometric site (alone) corresponding to portions of the substantia nigra and its immediate superior medial neighborhood. In all cases the first exposure promptly reduced the tremor in at least one and, more often, both contralateral limbs. Rigidity was simultaneously reduced after this first exposure. Further exposures of the "nigral region" counteracted the tremor and abolished or alleviated the rigidity.

With regard to relief of rigidity in parkinsonian patients, a somatotropic differentiation in the "ansal region" was recognizable in at least some patients: a rostrosuperior region corresponds to the contralateral upper limb, and a caudoinferior region to the lower limb. This differentiation was observed more often than not. In addition, a topographic differentiation in the "ansal region" between neural representations of the flexor and extensor muscles of the contralateral limbs was noted in some patients. In some parkinsonian subjects, irradiation fully encompassing the "ansal region" was not followed by reduction of tremor, even though rigidity was abolished in the contralateral limbs. This observation indicates that in such patients tremor is mediated by a different neural mechanism than that subserving rigidity. On the other hand, irradiation of the "nigral region" was always followed by prompt abolition of tremor and simultaneous reduction of rigidity. It may be deduced that the portion of the neural mechanisms subserving tremor and rigidity in the "nigral region" are here closely associated, perhaps even share neural components.

The patient with quadriplegic tension athetosis was irradiated at the "ansal region" on the left side and, 4 months later, at the "nigral region" on the right. The hypertonus was reduced in the contralateral limbs. As to the hyperkinesia, involuntary thrusting movements of the tongue and lips subsided after the left "ansal" irradiation, permitting easy feeding for the first time in years. The athetotic movements in the limbs of the right side were reduced in vigor, amplitude, and frequency and, during repose, were in abeyance. Crude purposive acts could now be executed with the right upper limb. The athetosis of the left-sided limbs was completely abolished after "nigral" irradiation on the right.

DERMATOLOGY

Superficial and Deep Mycoses in Cuba: A Report Based on 1,174 Cases. V. Pardo-Castello and F. Trespalacios. South. M. J. **52**:7-15 (Jan.) 1959 [Birmingham, Ala.].

The authors report on 1,174 patients with superficial and deep mycoses, who were observed at the clinic for dermatology of the University Hospital in Havana, Cuba. Of the 1,174 patients, 249 had tinea of the scalp, 227 had tinea cruris, 206 had dermatophytosis of the feet, 144 had onychomycosis, 78 had tinea of the glabrous skin, 71 had chromoblastomycosis, 64 had candidiasis, and 135 had miscellaneous conditions. Tinea of the scalp was most commonly caused by Microsporum canis. One case occurred in a one-month-old infant. The treatment of tinea kerion with penicillin administered locally and systemically was considered most successful. Trichophyton rubrum and T. mentagrophytes were the common agents in dermatophytosis of the feet, with Epidermophyton floccosum next in order. Most cases of onychomycosis were caused by T. rubrum. Treatment with 40% salicylic acid plaster and subsequent administration of antifungal preparations were considered to be the method of choice. In 70 of the 71 patients with deep-seated chromoblastomycosis, Fonsecaea (Hormodendrum) pedrosoi was recovered in cultures. In one case the fungus was identified as Cephalosporium carrionii. Among 135 patients with miscellaneous conditions, there were 10 with sporotrichosis, 7 with actinomycosis, and 6 with mycetoma of the feet. From the latter 6 patients, Nocardia brasiliensis was recovered 3 times, N. pelletieri twice, and Monosporium apiospermum once.

BOOK REVIEWS

Treatment in Internal Medicine. By Harold Thomas Hyman, M.D. With foreword by Walter C. Alvarez, M.D. Cloth. $12.50. Pp. 609, with illustrations. J. B. Lippincott Company, E. Washington Sq., Philadelphia 5; 4865 Western Ave., Montreal 6, Canada; Pitman Medical Publishing Company, Ltd., 45 New Oxford St., London, W. C. 1, England, 1958.

The writer of the foreword of this volume states, "In this book, I find that Dr. Hyman has again gathered together an amazing amount of information on treatment, and on treatments that have recently been developed." What is amazing is the amount of misleading and wrong information that it contains. In sentences replete with such terms as "anti-infectives," "toxicoderms," "adrenergics," "tuberculocide," "probatory treatment," "antitensives," and "generalist" the reader is told some surprising things. For instance on the first page, apropos of "an integrated program for the care of the infected patient," it is stated that the busy practitioner has neither the time nor the facilities for exhaustive investigation. Hence he is advised to make an "educated guess" on the basis of clinical findings, then "open fire with the particular therapeutic product that appears most apt to decimate the assailant, and least apt to add insult to the defendant's existing injuries. . . . When probatory treatment has proved unrewarding and/or when potential hazards of improvisation appear to exceed possible risks of temporary delay the clinician asks for (1) isolation and identification of the invading pathogen, (2) an estimate of the quality and potency of the patient's antibody responses, and (3) accurate titrations of the particular microbe's sensitivity to available anti-infective agents. With these data at hand he substitutes or inaugurates scientific anti-infective treatment." Many jokes have been concocted over this sequence of events, but never before has such a procedure been seriously advised in a textbook of medicine.

We are advised that penicillin should usually be given orally but if intramuscular use is thought necessary, benzathine penicillin G is the preferred preparation. In the index the reference to subacute bacterial endocarditis directs the reader to hemophilus infections, apparently an error. After some searching a short reference was found to it under a discussion of the "streptococcoses." A 14-day course of daily doses of 6 million units of potassium penicillin G with 2 Gm. of dihydrostreptomycin daily, both intramuscularly, is advised, but no mention of ristocetin is made. On page 22 the reader is advised to "prevent and actively treat staphylococcal, streptococcal and gram negative bacillary super-infections with parenteral streptomycin-dihydrostreptomycin mixtures or with injectable neomycin (3 to 6 mg. per lb. per day)." On page 35, discussing the immediate care of virus pneumonitis, a loading dose of 1 Gm. of "any tetracycline to which the patient has not recently been exposed" is advised. Then the choice of novobiocin, erythromycin, carbomycin, or oleandomycin also is offered. "With failure of response, suspect an error in diagnosis. Collect sputum for microscopy (fungi, acid-fast bacilli) and culture. Obtain blood for culture." And so it goes.

Long lists of proprietary preparations available for treatment are presented with each section of the book. There are many practical hints on the care of the patient in the home which obviously were learned through experience. Because of its many inaccuracies this book cannot, however, be recommended for general use.

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

Textbook of Surgery. Edited by Guy Blackburn, M.B.E., M.Chir., F.R.C.S., Surgeon, Guy's Hospital, London, and Rex Lawrie, M.D., M.S., F.R.C.S., Surgeon and Assistant Director of Department of Surgery, Guy's Hospital. With foreword by Sir Russell Brock, M.S., F.R.C.S., F.A.C.S., Thoracic Surgeon, Guy's Hospital. Cloth. $16.75. Pp. 1122, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1958.

This new textbook of surgery represents an attempt to survey the field of general surgery and the surgical specialties, with the exception of ophthalmology and otolaryngology. The authors state that one of the main objectives was to aid the student preparing for final examinations. Emphasis was, therefore, laid particularly on the clinical side of surgery, and discussion of surgical pathology as well as operative detail was reduced to a bare minimum. The book is well written and the large type is easy to read. The major subdivisions are clearly outlined and there are many excellent illustrations, some of which are in color. It seems unlikely, however, that this book will serve fully the purpose intended for the serious medical student or for the graduate physician. On the one hand it is too long to be merely a synopsis, while on the other it is too short and incomplete to be a well-rounded textbook for the graduate student. It is estimated that those American textbooks which have proved popular contain at least twice the total amount of material presented here. It seems likely, therefore, that this text will find its greatest value as an introduction to a course in surgery for students in the preclinical years, or perhaps as a textbook for nurses.

QUESTIONS AND ANSWERS

ANTISTREPTOLYSIN TITER

To the Editor:—*What is the significance of an antistreptolysin titer which remains consistently above 833 units? This occurred in a patient with acute glomerulonephritis in whom all urinary findings were normal for over a year. The sedimentation rate was also normal.*

Glenn T. Howard, M.D., Alice, Texas.

Answer.—Because the upper limit of normal for antistreptolysin titers is considered to be 50 Todd units, it is obvious this patient has an elevated titer. One can only conclude that he has been exposed, or is being exposed, to streptococcic toxin of sufficient antigenic quality and quantity to cause antibody formation. Whether this has been occasioned by the attack of nephritis or by a reaction to some other streptococcic infection cannot be stated, because the titer prior to the attack of nephritis or during the early stages of the disease is not known. It is likely that the present high titer was caused by the disease, but the finding does not now indicate anything more than past or present exposure to antigenic streptococci. This significantly points up the limitations of a single determination of antistreptolysin titer. In the absence of other clinical data to indicate illness in the past year, one may conclude that the present titer is without clinical significance.

SENILE ACHLORHYDRIA

To the Editor:—*In an annual examination program which included the quinine carbacrylic resin test for gastric acidity, about 25% of persons tested were found to have achlorhydria. The patients were of the type usually found in general practice, including many elderly persons. The question arose as to whether a gastrointestinal series should be done on all with achlorhydria. An occult blood test was performed, and this helped in making some decisions.*

Vernon E. Roth, M.D., Marcellus, N. Y.

Answer.—With increasing age, the stomach tends to form less acid, just as the sebaceous glands in the skin form less fat. In 1932, Vanzant and coworkers (*Arch. Int. Med.* 49:345, 1932) studied gastric analyses of 3,746 persons who, after x-ray studies, did not appear to have any organic disease of the digestive tract. They found the incidence of achlorhydria to rise from almost zero in patients at 20 years of age to around 25% in patients at 65. In almost all of these patients the loss of gastric acidity had not produced any symptoms and seemed to need no treatment. The incidence of carcinoma is higher in the atrophic gastric mucosa of persons with primary anemia; hence, these persons should have stomach x-rays at least once a year. However, all persons past the age of 40 ought to have stomach x-rays once a year to be on the safe side. If one waits to do something about cancer of the stomach until it gives symptoms, there will be an even chance that no surgeon will want even to explore the abdomen; if the surgeon does think it worthwhile to explore, there will be an even chance that he will not attempt a resection; and, if he does resect, the chances will be about 70 to 30 that there will be a recurrence. Obviously, the wise person will have the stomach x-rayed at yearly intervals so that if a lesion is found it will probably be operable and resectable.

Answer.—The quinine carbacrylic resin test is valuable in screening for gastric acidity, but it does not reveal a true achlorhydria. This is accomplished by doing a gastric analysis with the use of betazole hydrochloride or histamine. Studies have shown that about 10% of all persons over 65 years of age have achlorhydria after such a potent stimulus. It would be only in these persons that a gastrointestinal series would be definitely indicated.

ACHONDROPLASIA

To the Editor:—*A 24-year-old woman has had three children, the last two of whom died at or shortly after birth with achondroplasia. Because of this condition, which is supposedly transmitted through the male, her husband had a vasectomy last year. The patient wants to have more children. Since she is having great difficulty trying to adopt a child, because of the demand, she is willing to consider artificial insemination, provided she can be reassured she will not have the same results as with her last two pregnancies. Is there any doubt that achondroplasia is always transmitted by the male?*

M.D., Pennsylvania.

Answer.—There is no basis for the belief that achondroplastic dwarfism is transmitted only through the male. It is normally transmitted as a dominant, but, since neither parent shows the defect, it appears probable that it arose as a new mutant—whether in the husband or in the wife it is impossible to say. If it came from the husband,

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

normal offspring would be expected from the proposed artificial insemination. If the mutation was in the wife's ovary, however, she might bear another defective child.

CARBON MONOXIDE POISONING

To the Editor:—*Could the symptoms in the following case be caused by anoxia or methane poisoning? A new space heater had been installed in the living room of the patient's home a few days before this incident. At 1 a.m., a 26-year-old man was found lying in his living room doorway with what first appeared to be a shaking chill. He had vomited and had urinary and fecal incontinence, but he was not unconscious and could answer simple questions. He was pale but not cyanotic. There was no odor of gas in the house (the natural gas used in this area is supposed to have an identifying odor added). The patient was hospitalized, and he felt improved by the time he was admitted but still complained of headache and chilliness. He had had a cold for a few days. A roentgenogram of the chest showed an increase in the bronchovascular pattern. Urinalysis was normal. The hemoglobin level was 9 Gm.%. Babinski's, Chvostek's, and Trousseau's signs were negative. There was no carpopedal spasm. Knee jerks were not obtained. The patient's temperature did not go over 99 F (37.2 C). He was well enough to be discharged at 5 p.m. on the day of admission but could not return to work for a week because of bronchitis and vomiting. Two hours after his admission to the hospital his wife, sister, and two small children in the bedroom were simultaneously seized with headache and vomiting which subsided a few hours after they vacated that apartment. The patient later explained that he had been sitting in the living room watching television while his wife was out and the two children were sleeping in another room. He noted a sharp headache and nausea, but his legs seemed paralyzed and he fell in the doorway as he was telephoning his wife to come home. The space heater had been installed with the warning not to run it continuously before it had been "readjusted," but because of the extremely cold weather it had been burning all day and was not shut off until the other members of the family became ill. Since its removal there has been no further trouble.* *M.D., Massachusetts.*

Answer.—The five patients referred to in this inquiry all suffered from acute carbon monoxide intoxication. The clinical findings in each patient were typical. Some authorities mention that a common finding is a red or cherry red color of the face, but in this consultant's experience pallor is found in about half of the patients with acute intoxication due to carbon monoxide; this is particularly true when vomiting has occurred. The exaggeration of the bronchovascular markings was due to the presence of a respiratory infection and had no relationship to the carbon monoxide poisoning, and the low hemoglobin value seems likewise unrelated. Chemical determination for carbon monoxide in the blood stream made on the husband's admission to the hospital (or shortly thereafter) would have confirmed the diagnosis. Carbon monoxide is one of the most important intoxicants associated with man's life and with the field of industry. It also has an extremely ancient history: its significance began when cave man lit his first fire, and in written records its effects were mentioned by Aristotle in about 300 B. C. and by Seneca in 68 A. D. Today it is a serious economic problem as one of the most subtle and dangerous of the intoxicants in either factory or home life. Natural gas does not contain carbon monoxide and, therefore, cannot cause carbon monoxide intoxication, provided that other gases have not been added to it. On the other hand, various types of manufactured gases and by-product gases may contain 5 to 40% of carbon monoxide; hence, the leakage or escape of such gases can produce carbon monoxide intoxication. Carbon monoxide is formed whenever any organic material is burned with incomplete combustion or too little oxygen. All standard textbooks are full of references to such occurrences with various types of stoves, grates, heaters, braziers, and salamanders. This is precisely what happened in this case, and it is to be noted that warning was given regarding running the space heater continuously and without readjustment. Furthermore, the space heater was not ventilated in any manner, and, presumably, because of the extreme cold, the windows of the rooms were not open. In the monograph by Drinker (Carbon Monoxide Asphyxia, London, Oxford University Press, 1938, pp. 97-103), the composition of natural gas, dangers of heaters, mechanism of the formation of carbon monoxide, and similar subjects are discussed in detail.

ALLERGY TO SILVER PROTEINS

To the Editor:—*What is the danger of an allergic response to topical application of the various types of silver protein solutions?*

Harold A. Abramson, M.D., Cold Spring Harbor, N. J.

Answer.—The danger of an allergic response to topical application of silver protein solutions appears to be remote. The nonallergic reaction of argyria (a grey, blue, slate blue, or brown discoloration of the skin, due to deposition of silver) formerly was fairly common because topical application of silver protein solution to the mucous membranes was frequently continued over long periods, but proved allergic responses to silver protein solutions are exceedingly rare. Howard (*Laryngoscope* **40**:215, 1930) reported a patient who developed

nasal blockage after he had used a mild silver protein preparation apparently with impunity for several years. The blockage subsided when use of this agent was discontinued. Subsequently, when it was applied again, the patient developed severe urticaria, angioneurotic edema, and collapse. Criep (*J. A. M. A.* 121:421-422 [Feb. 6] 1943) reported a patient who developed sneezing, blockage, rhinorrhea, and wheezing in the course of local treatment with a mild silver protein preparation in the nose and severe asthma when his throat was sprayed with this solution. Scratch tests with a 1% solution of this substance gave positive results, and an intradermal test with this solution was followed by a severe local and mild constitutional reaction. The ophthalmic test also gave positive results. Antibodies were demonstrated in the patient's serum by means of the passive transfer method. Since negative findings were obtained on skin tests with silver nitrate, Criep concluded that the reaction was due to either the protein or the silver protein combination. Additional cases of allergic sensitivity to silver protein solutions may have occurred, but they have not been reported.

COMPOUND TIBIAL FRACTURE

To the Editor:—*One year ago, a patient sustained a multiple-compound fracture of his right leg. In one fracture site, the lower third of the tibia, there is still only a fibrous union in spite of open reduction and approximation of the tibial fragments with a stainless steel screw. What can be done to insure final healing of this fracture? What has been the experience with polyethylene and urethan "glue"?*

S. Perlroth, M.D., New York.

Answer.—Among the important factors that may be related to the nonunion of this fracture are the violence of the trauma which induced the fracture, the initial treatment as related to scene of the accident, the time lapse between injury and definitive treatment in the hospital, the primary method of immobilization and its duration with or without changes for improvement of position or angulation, the relationship of internal fixation to date of injury, the duration of external fixation and nonweight-bearing after fixation of fragments with the screw, the patient's present state of health, his emotional reaction to his problem, and his blood chemistry. If a fibrous union is now said to prevail, it is important to know when and how the basis for this statement was established. Knowing this, together with consideration of the above factors, one might confidently conclude that the patient has a delayed union rather than a nonunion. Continued immobilization is indicated. No surgical procedure should be considered to insure final healing until the state of nonunion has been established on the basis of all reliable criteria, including a liberal consideration for the criteria of time. Fractures of the distal third of the tibia are noted for the frequency of delayed union and, less frequently, nonunion. For this reason, it is wise to be guided by the laws which govern the healing of fractures instead of rushing into surgical treatment. If the indications for an operation should be established in this instance, the transplantation of cancellous iliac bone to the fracture site should be considered. There are too many unanswered questions regarding the use of polyethylene and urethan glue to warrant their use. These should not be added to the complications which are known to prevail in this case.

COLONIC POLYPS

To the Editor:—*A 42-year-old man was operated on for polyps of the colon and rectum. A resection of the sigmoid was performed. Two polyps showed early malignant changes. There was no invasion of the serosa, and the mesenteric lymph nodes were free of metastases. What are the chances for complete and permanent cure? Inasmuch as this patient has a tendency to develop colonic polyps, what can he do in the future to avoid them? What is the role of protein foods and, in particular, dairy products in the development or prevention of these polyps?*

M.D., Illinois.

Answer.—The chances for complete and permanent cure are excellent. This consultant knows of nothing that can be done to prevent future polypoid formation, but a proctoscopic examination should be made annually without fail. A colon x-ray examination with use of the air contrast technique should be made every two or three years. If new polyps are detected proctoscopically, an x-ray examination of the colon should be made at once and the newly discovered polyps fulgurated or removed without delay. There are no drugs or special diet which would prevent recurrence. Protein and dairy foods do not play any role in the development of polyps.

THROMBOANGIITIS OBLITERANS

To the Editor:—*Are there any detectable signs in the oral mucosa which might hint at latent thromboangiitis obliterans? Are these signs influenced by recent smoking?*

Richard L. Westerman, M.D., Gunnison, Colo.

Answer.—This consultant is unaware of any vascular lesion in the oral mucosa suggestive of thromboangiitis obliterans. It is true that this disease may occur in many visceral vessels, including cardiac, renal, and cerebral arteries. While many systemic disorders have characteristic signs in the oral cavity, thromboangiitis obliterans is not one of them.

The Journal

OF THE

American Medical Association

EDITED FOR THE ASSOCIATION UNDER THE DIRECTION OF THE BOARD OF TRUSTEES BY

JOHNSON F. HAMMOND, M.D.

VOLUME 169 January-April, 1959

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*A. M. A. Archives of Dermatology. Chicago.
*A. M. A. Archives of Industrial Health. Chicago.
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*A. M. A. Archives of Neurology and Psychiatry. Chicago.
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*A. M. A. Archives of Pathology. Chicago.
*A. M. A. Archives of Surgery. Chicago.
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American Surgeon. Baltimore.
Anaesthesia. London.
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Angiology. Baltimore.
Annales chirurgiae et gynaecologiae Fenniae. Helsinki.
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Annals of Allergy. St. Paul.
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Belgische tijdschrift voor geneeskunde. Leuven.
Bibliotek for laeger. Copenhagen.
Blood. New York.
Boletín de la Asociación médica de Puerto Rico. Santurce.
British Journal of Industrial Medicine. London.
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*Cannot be lent.

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The letters used to explain in which department the matter indexed appears are as follows: "E," Editorial; "C," Correspondence; "ab," abstracts; the asterisk (*) indicates an original article in THE JOURNAL. Page numbers in the index refer to the bold face numbers in the text.

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Am.—American	*Inst.—Institute*
A.—Association	*Internat.—International*
Coll.—College	*M.—Medical*
Commn.—Commission	*Med.—Medicine*
Comm.—Committee	*Nat.—National*
Conf.—Conference	*Pharm.—Pharmaceutical*
Cong.—Congress	*Phys. Physicians*
Dist.—District	*Soc.—Society*
Div.—Division	*Surg.—Surgery*
Found.—Foundation	*Surgs.—Surgeons*
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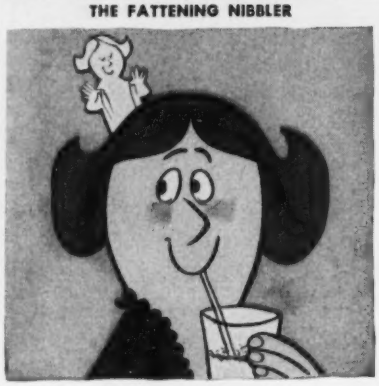

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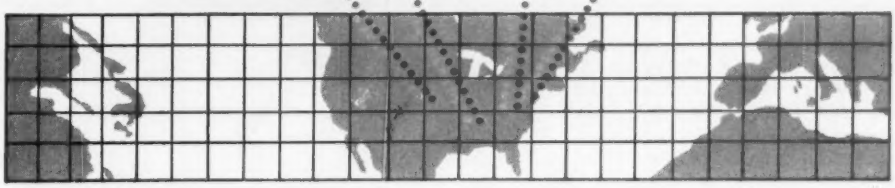

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"Then go to the new doctor in town, I'm too old a man to get out of bed for anyone who has money."

•

It happened in a Fifth Avenue department store. A woman with a Pekingese on a leash was standing next to a man waiting to be served. The dog kept poking around the man's legs and he kept drawing away from the animal.

Finally the woman said, "Don't be afraid. My Pekingese won't bite you."

"Madame," came the response, "I am not afraid your dog is going to bite me, but as he keeps lifting his leg, I'm afraid he's going to kick me."

While on the subject of department stores, a big midwestern department store conducted a big ceremony over its one-millionth customer. The store president made a speech, and the customer was given gifts and had her picture taken.

After the ceremony the customer continued to her original destination—the complaint desk.

•

Verse Riddles

There is a town in southern France
Framed by mountains, sky, and water;
It looks quite nice at your first glance,
But sounds more like a brother's daughter.

(Nice)

•

Its light was mellow, soft, and lazy;
One foot broke off—and it went crazy.

(Bedlam(p))

(Continued on page 254)

(Continued from page 248)

SHAY MEDICAL AGENCY

55 E. Washington Street
Chicago 2, Illinois

Service of Distinction since 1914

ASST. MED. DIR: (a) Ins. F/T, Fla, Int Med trng req; Sal, lite & hlth ins, retirmnt prog (b) F/T, East, to $15,000 w/lib bnfts; min traveling; some exp in Pharm fld hlpfl
ENT: Grp est since '17; NW; modern comp clin bldg; 2 hosp avail; to $20,000 start
EYE: 5-man grp Virginia near Wash., D. C., office share agreement or any agreement applicant may wish, financial assistance offered initially if required
G.P.: (a) no surg; 3-man assn; Calif nr San Fran; $1200 1st mo, then up; prtnrshp 1-yr; (b) w/surg & ob; steady income $18,000; 4-man grp; NEng manuf twn (c) w/minor surg, some indus; 6 man grp; So; $1000 a mo. & 50% of extras
INDUS. MED. & SURG.: F/T assn, 2 men; $10,000; MW
INSURANCE: desk job; NEng; orthop trng nec; $8,000, increments
INTERNIST: Cardiology or GE if interested, $15,000 start, future prtnrshp, clinic of 14 young doctors, hunting & fishing country of Minn
MEDICAL DIRECTOR: Railroad, Internist preferred, applicants should come from transportation industry, new medical dept. being established, N.Eng., to $15,000
NEUROSURGEON: assn w/2 highly qual men; MW; income open
OB-GYN: (a) 2nd in dept; Calif grp est 5 yrs; to $1000; (b) asst or assoc; Ill; 25-yr pract w/Cert man; compensation, working conditions 'no trouble'; hosp & Univ med schl connections
ORTHOP. SURG.: 2nd in dept now, head Dept in short while; MW clinic of yng men, est 11 yrs; to $16,000 w/special consideration
PEDIATRICIANS: familiar w/all kinds of jobs, all sections of country, paying the right salary
RADIOLOGIST: (a) assoc; lge active pract; Minn; referrals from 75 doctors; at least $15,000 1st yr, can be increased; (b) for 92 bed genl hosp; also direct cancer clin & Consultant VA mental hosp; West; man leaving netted $29,000 in '58
STUDENT HEALTH: (a) F/T staff; Jul 1st; MW; to $10,000 (b) GP or internist; ongtny tch & further study; to $10,000; So
SURGEON: hosp, So, to $15,000 1st yr
TBC: Med. Dir. & Supt; Calif; FCCP or Ellg; to $12,000 & mtn for doctor & family

Upon request one of our applications will be mailed to you. Write us today—a post card will do.

WANTED—INDUSTRIAL PHYSICIAN TO JOIN MEDICAL department of progressive Western North Carolina industry; previous industrial experience not necessary; duties may be demanding but working conditions are excellent; salary commensurate with previous background and experience; capable applicants interested in meaningful work are invited to apply: Write Medical Director, Olin Mathieson Chemical Corporation, Pisgah Forest, N. C. C

DOCTOR'S OFFICE WITH RECEPTION; ALSO THREE physical therapy work rooms; fully equipped which can be rented; or the MDs office by itself; if interested in therapy equipment; it can be rented or sold over long term purchase lease contract; no charge for established therapy services; air conditioned; parking for 100 cars: Write or phone Lu. 3-9310, Daniel Rehabilitation Institute of Florida, 2120 W. Broward Blvd., Ft. Lauderdale, Fla. C

INTERNIST — FOR STAFF OF GROUP PRACTICE clinic; service membership of over 20,000 in Washington, D. C.; department heads and many other staff members have American boards; prefer man with 2 years General internship and graduate of grade A medical school; annual salary (open); one month vacation; sick leave; comprehensive retirement plan; write to: Group Health Association, Inc., 1025 Vermont Avenue N. W., Washington 5, D. C. C

FORENSIC PATHOLOGIST — FOR NEWLY CONstructed excellently equipped district laboratory fully staffed in all phases; Norfolk—to serve Tidewater area; statewide medical examiner system; excellent future in rapidly growing specialty; pathologist with forensic interest will be considered; salary open. Apply to: Geoffrey T. Mann, MD, LL. B. Chief Medical Examiner, 404 North 12th Street, Richmond, Virginia. C

OPPORTUNITY—NEEDED A DOCTOR FOR SMALL town and community of 1,500 persons; new clinic available immediately on advantageous terms; 340 families supported the building of the clinic; hospital within 20 minutes of town; housing available; good schools, churches, roads; community facilities. Contact: W. H. Ritchey, Lind, Washington. C

OTOLARYNGOLOGIST WANTED—IF YOU ARE AN ear, nose and throat specialist, don't fail to write for particulars regarding the position which is now open for an otolaryngologist; this position offers the right man a chance to work in a busy office; excellent location; top notch salary; yearly advancement and early partnership. Reply at once to: Box 7993 C, % AMA.

PEDIATRICIAN—TO SHARE PRACTICE WITH ONE other pediatrician in group of 7 young specialists; suburban Detroit; attractive living area with good schools nearby; salary $15,000 first year; full partnership after 2 years; Contact: H. D. Russell, MD, 1221 Lincoln, Lincoln Park, Michigan. C

Patricia Edgerly.

has been successfully placing physicians in happy situations for many years. Groups—Industrial—Hospitals—Pharmaceutical.

THE NEW YORK MEDICAL EXCHANGE
489 Fifth Avenue (Opposite Public Library)
Specialists in Selection Since 1926

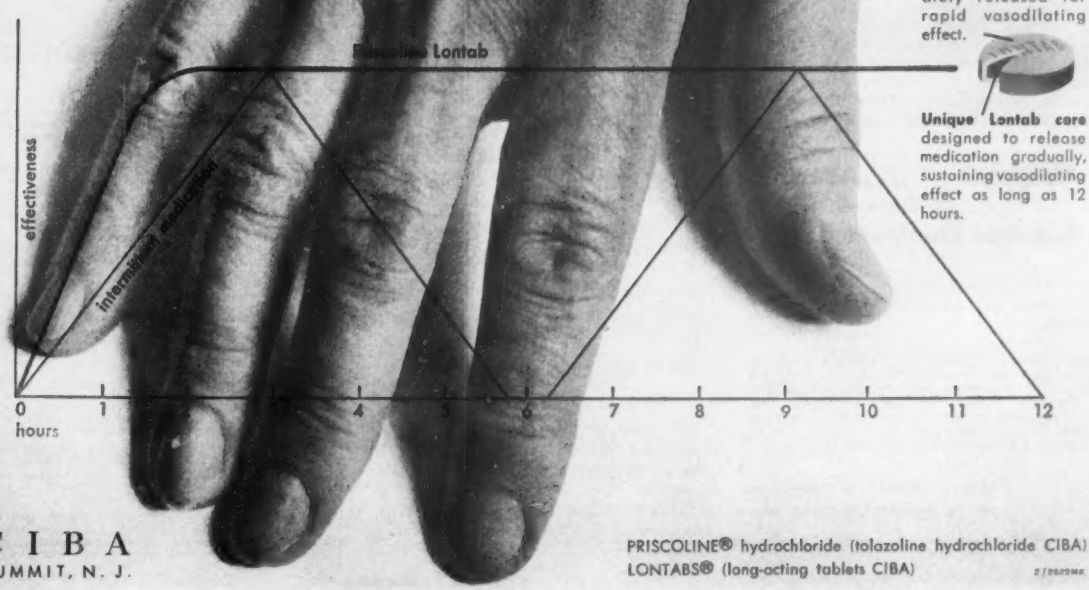
(Continued on page 254)

improved peripheral blood flow now sustained for 12 hours with just one Priscoline® Lontab®

Improved circulation to the extremities can now be sustained all day or all night with just one Priscoline Lontab. Exclusive Lontab formulation offers rapid initial effect, steady, prolonged increase in blood flow to the extremities when circulation is impaired. Lontabs keep hands and feet warm without the chill periods of intermittent medication in patients with arteriosclerotic peripheral vascular disease, Raynaud's disease, thromboangiitis obliterans, postoperative and postpartum thrombophlebitis and similar conditions.

Dosage
One Priscoline Lontab every 12 hours.

Supplied
Priscoline Lontabs, 80 mg.
(15 mg. outer shell, 65 mg. inner core).



Special outer shell actually contains initial dose of medication which is immediately released for rapid vasodilating effect.

Unique Lontab core designed to release medication gradually, sustaining vasodilating effect as long as 12 hours.

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LONTABS® (long-acting tablets CIBA)

WHY WHY WHY

COLLOID SPONGE BATHS FOR CHICKEN POX AND MEASLES?

To control itching and reduce the incidence of excoriated lesions and scarring, *only* bland and conservative measures should be used. For example, the parent should be discouraged from applying the calamine-plus-antihistamine type of antipruritic agent, since sensitization may result.[1]

When chickenpox lesions are already infected, "application of sulfonamide or antibiotic ointments carry dangers of sensitization and should be avoided."[2] Grulee recommends a daily "sponge bath" and the gentle application of "skin lubricants" to protect early crusts.[3]

To moisten, soften and lubricate the lesions, sponge baths with Aveeno "Oilated" are most appropriate. In one simple procedure, they supply (a) the soothing and antipruritic effect of colloidal oatmeal and (b) the emolliency of 35% added oils. Lesions are kept soft by the after-bath film of oil that remains on the skin, and irritation from drying and desquamation is greatly reduced.

AVEENO® "OILATED"
Colloidal Oatmeal
Colloidal Emollient Baths

Active Ingredients: Colloidal oatmeal, liquid petrolatum and hypo-allergenic fraction of lanolin.

REFERENCES: *1. Leider, M. Practical Pediatric Dermatology. St. Louis, C. V. Mosby Company 1956, p. 210. 2. Hughes, J. G. Pediatrics in General Practice. McGraw-Hill Book Company, Inc., New York 1952, p. 500. 3. Grulee, C. G., Jr.: in Current Therapy 1958. Ed. by Conn. H. F.: W. B. Saunders Company, Philadelphia 1958, p. 7.*

Aveeno "Oilated" is supplied in 10 oz. hermetically-sealed cans.

AVEENO CORPORATION • NEW YORK 19, N. Y.

Pioneers in Ethically-Promoted Colloid Baths

TONICS AND SEDATIVES *(Continued)*

All the News That Fits

One section of many newspapers that always makes fascinating reading is the classified ads. Careful perusal will either cause a chuckle or a puzzled frown. Some examples are as follows:

Ad in a Cape Cod guidebook: "Specially treated logs. Will burn for at least six hours at your beach party. If they go out after that, it's time you went home yourself."

•

Ad in a Washington newspaper: "Attractive, ethical, employed brunette widow wishes single, clean-cut, reliable, outdoor-type escort, aged 40 to 50. Mutual expense. Object: Companionship, not marriage. Write box 697."

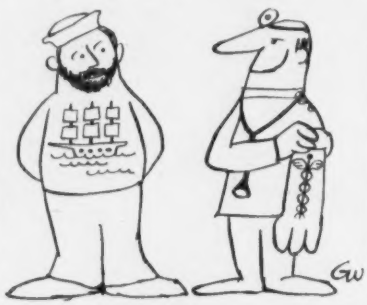
Three days later the following appeared in the same column: "Men not meeting box 697's qualifications, please write box 702. Two Desperate Secretaries."

•

The following real-estate ad appeared in a New Hampshire playhouse bill: "For sale: business site in large city. Busy intersection with traffic light out of order. Just the right spot for doctor or lawyer."

•

And from a Dallas newspaper: "My husband's $50 puppies for sale for a lot less. If he answers, hang up."



Quotes of the Week

The saddest words of tongue or pen, "We just sold Junior's buggy, then—"

•

He sounds off on world news as if the morning paper printed only one copy and he had it.

•

She reminds me of a switchboard. When she walks all her lines are busy.

•

If you ever feel neglected, think of Whistler's father.

•

She is a picture of her mother and the sound track of her father.

•

Her singing is mutiny on the high C's.

Anecdotes

The man who was giving the party introduced a distinguished guest to a woman who was wearing a strapless evening dress, by saying:

"This is Professor Schmertz, authority on structural engineering. He wants to ask you something."

(Continued on page 256)

(Continued from page 252)

The Medical Bureau

900 North Michigan Avenue Chicago

ADMINISTRATION: (A17) Med. Dir; fully approved 400-bed hosp; famed resort city, So; $15,000.
ANESTHESIOLOGY: (B67) Assoc. med anes; 425-bed gen hosp increasing to 550; fee-for-service, full hosp privileges; income probably $30,000; town 100,000 near NYC.
FOREIGN: (B48) Surgeon, pediatrician; tropical; 200-bed hosp; 2-yr. contract; oppor. GP or other spec.
GENERAL PRACTICE: (F56) Group Ass'n; pref. 1 yr. res. training; $1000 mo; partner 2d yr; No. Calif. (F57) Ass'n 6-man group; oppor. assist 2 Board surgeons; Pac. NW.
INDUSTRIAL MEDICINE: (C19) Ass't med. dir; 2500 employees; Mt. resort area, No. Carolina; $12,000.
INSURANCE: (K35) Home office $10,000 no exp; more for exp; NYC.
INTERNAL MEDICINE: (H32) Ass'n Board internist; univ. city, Tex; $12-$15,000; partner oppor. (H33) Ass'n, 4-man group; new bldg; early partner; college town near Chicago.
OBSTETRICS-GYNECOLOGY: (J79) Ass'n, Board OB-Gyn; 35-man clinic; 350 bed hosp; near NYC, Phil. (J80) Ass'n OB-Gyn; coll. town, 90,000, Calif; partner oppor.
ORTHOPEDICS: (K15) Head dept, 22-man clinic, own hosp., 250 beds; New York.
OTOLR: (E67) Otolaryngologist; qual endose head dept 12-man grp; area pop 300,000; Ohio.
PATHOLOGY: (L31) Senior & assoc; 700 bed hosp; 9% gross; Sr approx $50,000; assoc $35,000; MW.
PEDIATRICS: (M43) Ass'n cert ped; share exp; initial guarantee; coll town; S. Cal.
RADIOLOGY: (R79) Ass'n 2 radiol; 675 beds; new equip; cobalt & isotope prog; med schl affil; $25,000 guar 1st yr; partnership 4 yrs; SE.
SURGERY: (U61) Ass'n 8-man group, 200-bed hosp; orthopedic train. helpful, not req; univ. city, NW. (U62) gen & thoracic surg; Ass'n well estab; Board surg; So.
TUBERCULOSIS: (Z) med supt; TB san; univ. town, So; $10,000; family mtce.

Please send for our Analysis Form.

Burneice Larson DIRECTOR

PHYSICIAN BETWEEN THIRTY AND FIFTY FOR copper mining community in Arizona; largely general practice but surgical training would make applicant more valuable; an Arizona license or Eligibility for same required; a Basic Science Certificate is needed to qualify; low rental housing available; salary plus extra income. Box 8100 C, % AMA.

YOUNG RADIOLOGIST — WANTED TO ASSOCIATE with diplomate in beautiful western college city of 35,000 in mountain country; with hunting; fishing and skiing; one hour from city; new hospital; with well equipped X-ray department; financial arrangements open. H. J. Brown, MD, Box 537, Provo, Utah. C

WANTED—HOUSE PHYSICIAN IN SMALL CHESTER county community close to Philadelphia; salary $500 per month; with social security benefits and one month vacation; must be licensed in Pennsylvania; apply to Miss Helen V. Barton, Administrator Coatesville Hospital, 300 Strode Ave., Coatesville, Penn. C

ORTHOPEDIST—BOARD CERTIFIED OR BOARD ELIgible; salary basis leading to partnership; no investment necessary; well established private practice in flourishing Long Island community; Write, Edwin R. Linwood, MD, 165 North Village Avenue, Rockville Centre, L. I., New York. C

RADIOLOGIST — DIRECT RADIATION THERAPY center in beautiful midwest university city; splendid working conditions; independence, complete spectrum of equipment to 25 MeV, isotopes, radium, diagnostic training desirable, but not required. Box 8106 C, % AMA.

GENERAL PRACTITIONER—CALIFORNIA; INLAND location offers to $1500 monthly to general practitioner qualified surgery and obstetrics; few house calls, patients visit the hospital-clinic. Pacific Coast Medical Bureau, Agency, 1404 Central Tower, 703 Market Street, San Francisco 3. C

WANTED — GENERAL PRACTITIONER, EASTERN North Carolina lake resort town; active practice; grossing $26,000 to $28,000, still growing; residence available; physician leaving for residency. For further information write: Doctor's Office, Wananish, North Carolina. C

ANESTHESIOLOGIST—UPPER MIDWEST CITY OF 100,000; vacation and outdoor sports area; join Board Anesthesiologist; fee for service basis in new 450 bed hospital; excellent surgical staff; guaranteed income first year then partnership. Box 7881 C, % AMA.

WANTED—25 DOCTORS WHO CAN INVEST $2,000 each with an active interest to build a sanitarium; location Wyoming; near Yellowstone Park; specialty asthma, bronchitis, hay fever. Mail address: Robert E. Rowe, 822 Majestic Building, Denver, Colorado. C

WANTED — GENERAL PRACTITIONER; PURCHASE established city practice; hospital privileges available; general practice or 1 year pediatric residency desirable; available August 1959; will introduce: Kenneth Kaufmann, MD, 120 Nebraska, Akron, Ohio. C

WELL ESTABLISHED GENERAL PRACTICE IN growing California community near San Francisco needs third man; applicants should be under 35; have surgical training; $1,000.00 monthly at start; leading to partnership; reply to Box 8088 C, % AMA.

INTERNIST FOR FULL TIME STAFF OF VERY active 300 bed general hospital wanted; stimulating environment; all service chiefs board certified; contact manager: VA Hospital, Wilmington, Delaware. C

(Continued on page 258)

because it "closely approaches the 'ideal anticoagulant,'"[1] COUMADIN has become widely accepted as an anticoagulant of choice[1-3]

"most of the drawbacks of Dicumarol have been overcome [with COUMADIN] ... It is my firm belief that in time it will replace Dicumarol on the basis of its performance over a wide variety of conditions..."[2]

COUMADIN SODIUM

ORAL
I.V. or I.M.

IN MYOCARDIAL INFARCTION AND OTHER THROMBOEMBOLIC DISORDERS

COUMADIN CONSISTENTLY PROVIDES

rapid and sustained effect with low dosage • high predictability • ease of control for long periods • low incidence of "escape" • equal effectiveness by oral or parenteral routes • reduced need for frequent prothrombin time determinations after initial dosage adjustment • ready reversibility with vitamin K_1

Complete Information and Reprints on Request

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ENDO LABORATORIES
Richmond Hill 18, New York

TABLETS
For oral administration—2 mg., lavender, scored; 5 mg., peach, scored; 10 mg., white, scored; 25 mg., red, scored.

INJECTION
For parenteral administration—Single Injection Units, consisting of one vial, 75 mg., and one 3-cc. ampul Water for Injection.

AVERAGE DOSE
Initial, 50 mg. *Maintenance*, 5-10 mg. daily, as indicated by prothrombin time determinations.

COUMADIN (warfarin) Sodium—manufactured under license from the Wisconsin Alumni Research Foundation—*developed for clinical use by Endo.*

References: 1. Baer, S., et al.: J.A.M.A. 167:704, 1958. 2. Link, K. P.: Circulation 19:97, 1959. 3. Meyer, O. O.: Postgrad. Med. 24:110, 1958.

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TONICS AND SEDATIVES *(Continued)*

A statuesque blonde walked into a fashionable shoe store and told the clerk, "I don't know the style or color of the shoes I want, but I do want low heels."

"And what are you going to wear them with?" inquired the clerk politely.

"A short, fat, elderly executive," came the bored answer.

•

The innovations in cooking today have certainly changed the housewife's attitude towards shopping. Recently at a supermarket we noticed a young man run over to a shelf and pick up a box of something or other.

The young wife, obviously shocked, exclaimed, "Oh, no, honey. Put it back. That has to be cooked!"

•

A Germy Dance

The Patho Lab was still that night
When through a broken screen the light
Shone full upon a fast-black cat,
That spied the inoculated rat.

Oh! such a frenzied bit of fright
Then in a gruesome, bloody fight,
They knocked the Petri dishes down,
And all the bugs were strewn around.

Free! stark free! the bugs all yelled.
Then the agar agar jelled.
We'll give a dance, then all shall see
How we conduct ourselves when free.

Some group'd and pair'd, as true germs may
The naughty ones had naught to say
Polio and TB sat out each dance;
They seemed misfitted in advance.

The Staphylococci, free and merry,
Sipped their cocktails with a cherry;
The Streptococci, proud and haughty
Thought the Diplococci naughty.

The Cricket and the ole Green fly
Gave such music it made germs sigh
Honors went to a spirochete
That did a can-can most discrete.

—Joseph Arthur Jeffries, M.D.

— D.D.

'MAREZINE'®

- nausea
- vomiting
- vertigo

BURROUGHS WELLCOME & CO. (U.S.A.) INC.
Tuckahoe, New York

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"You're not making a night call on the Duchess until you've shaved!"

even if your patient is a boom rat

*logger who rafts logs in a "boom"

he'll be pulling down his pay again soon thanks to

PARAFON

(PARAFLEX® + TYLENOL®)

for muscle relaxation *plus* analgesia

prescribe PARAFON in low back pain—sprains—strains—rheumatic pains

Each PARAFON tablet contains:
PARAFLEX Chlorzoxazone‡ . . . . . 125 mg.
A most effective oral muscle relaxant
TYLENOL Acetaminophen . . . . . 300 mg.
A preferred analgesic for painful musculoskeletal disorders

Dosage: Two tablets t.i.d. or q.i.d.

Supplied: Tablets, scored, pink, bottles of 50.

and in arthritis

PARAFON with PREDNISOLONE

Each PARAFON WITH PREDNISOLONE tablet contains: PARAFLEX® Chlorzoxazone‡ 125 mg., TYLENOL® Acetaminophen 300 mg., and prednisolone 1.0 mg.

Supplied: Tablets, scored, buff colored, bottles of 36.

Precautions: The precautions and contraindications that apply to all stejoids should be kept in mind when prescribing PARAFON WITH PREDNISOLONE.

McNEIL

McNeil Laboratories, Inc • Philadelphia 32, Pa.

† Trademark ‡U.S. Patent Pending

24AA55

(Continued from page 254)

GENERAL PRACTITIONER WANTED — EAST CENTRAL Indiana; community of five thousand; take over practice now grossing forty-four thousand; even greater potential; home office available if desired; Available June 1, 1959. Box 8085 C, % AMA.

ASSOCIATE OPHTHALMOLOGIST WANTED—BOARD Eligible; refractions and all surgery; large established eye practice; modern clinic; college town; $12,000 guarantee, bonus. C. M. Kershner, MD, Watson Clinic, Brookings, South Dakota. C

EXCELLENT OPPORTUNITY FOR PEDIATRICIAN-gynecologist or any specialty in medical building with general practitioner; internal medicine and dentist; five other doctors across the street. Apply: Dr. B. M. Davis, 11 E. Church Street, Frederick, Maryland. C

QUALIFIED YOUNG RADIOLOGIST TO ASSOCIATE with group of two radiologists in practice covering four hospitals and one medical group; western New York; excellent opportunity; complete information in first letter. Box 8050 C, % AMA.

RADIOLOGIST — EXCEPTIONAL OPPORTUNITY; Ohio Valley; 2 man group, 500, 175 general hospitals, all new departments; latest equipment; cobalt telepherapy; excellent income first year leading to full partnership 4 years. Box 8109 C, % AMA.

PSYCHIATRIST—CALIFORNIA LICENSED; ASSUME established general psychiatric practice; southern California, out of smog; preferred location. Continental Medical Bureau, Agency, 510 West 6th Street, Los Angeles 14. C

GENERAL PRACTITIONER AND/OR INTERNIST FOR association with busy surgeon; metropolitan northern Illinois city; open staff hospitals; $12,000 guaranteed first year plus percentage. Box 7852 C, % AMA.

PATHOLOGIST—TO DIRECT DEPARTMENT; CERTIfied; clinical and pathological St. Agnes Hospital; Wilkens and Caton avenues; Baltimore 29, Md. 225 bed hospital to be completed in 1961; contact Administrator. C

WANTED—G.P. TO ASSOCIATE WITH WELL ESTABlished medical group; salary open depending on training and experience; with option for partnership after one year; Florida License required; please give full details of qualifications. Box 8079 C, % AMA.

PEDIATRICIAN—BOARD ELIGIBLE OR CERTIFIED to affiliate with well established board pediatrician in N. J. ½ hour from N. Y. C.; salary; full partnership. Box 8075 C % AMA.

INTERNIST—CERTIFIED OR BOARD ELIGIBLE; FOR association with group of certified members; starting salary $15,000; yearly increments; bonus; life insurance program; send full particulars to Box 8080 C, % AMA.

for dry, red, scaly, cracked, soap-abused hands
acid-mantle
CREME pH 4.2 – LOTION pH 4.5
DOME
The normal, protective acid mantle of the skin, which has been removed by washing with soap and detergents, is instantly restored and maintained by ACID MANTLE Creme and Lotion, and normal physiological function and appearance return to the skin.
Creme in 1 oz. tubes, 4 oz., 1 lb. and 5 lb. jars. Lotion in 4 oz. squeeze bottles, 1 pint, and ½ gallon
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Stops the Flame of Skin Inflammation . . .
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A MODERN BUROW'S SOLUTION used all over the world . . . for contact dermatitis due to alkalis, chemicals, oils, soaps, plastics, etc. Also in powder packets.
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Founders of the counseling service to the medical profession, serving medicine with distinction over half a century.

ANESTHESIOLOGY: (w) Dir dept, formerly oper'd by 2 RNA's; 100 bd, vol, genl hsp; fee for serv; SW.
DERMATOLOGY: (b) Dipl to assoc w/2 Bd derms; univ city; important health resort area, SW.
GENERAL PRACTICE: (q) Assn, long est'd grp; $12,-000, increas'g to $25,000, 3 yrs; Alaska. (r) Assn new GP grp; $1-1,200 mo guar, then %; Calif. (s) Some trng Ob & surg; $15,000, rapid advnemt; SW.
INDUSTRIAL MEDICINE: (p) Med Dir; 2 new plants; lge corp; hd & organize Med Dept; to $15,000; MidE.
INSURANCE MEDICINE: (v) One w/Int Med trng; career post; $10,000 up, many benefits; East.
INTERNAL MEDICINE: (g) Assn 7 man grp, well-estd; oppor to $20,000; prtnr, 3rd yr; MW. (h) 12 man grp, est '48; own outstandingly beautiful & unique clinic bldg; early partner; lge city, Wash State.
NEUROSURGERY: (l) Hd dept; new post; 24 man grp, all Cert or Elig; new bldg; univ city, NW.
OALR: (a) Oph; assoc w/Dipl. Oph; sal open; facils, 300 bd hsp; Calif. (b) Oto; take over oto prac of EENT man, est 21 yrs; oppor $25,000; So. Calif.
OB-GYN: (u) 2nd man; 25 Bd men clinic; $15,000 plus %; univ city; MW. (v) Hd dept; 6 man long estd grp; 100 bd, genl, vol, JCAH hsp; $12,000, jr. prtnr 2 yrs; nr med schl; So. Central.
ORTHOPEDICS: (e) Hd dept; 11 man grp (3 Dipls); 110 bd, JCAH hsp; $17,000 increases, $23,000; SA.
PATHOLOGY: (h) Dir dept; 135 bd hsp expndg to 210 bds; oppor more than $25,000 yr; SE. (i) One qual dir dept; 500 bd, fully-apprvd, genl hsp; impor cancer prog; famous hlth resort area; SW.
PEDIATRICS: (j) Hd dept; excl hsp-cl grp; $18-20,000; $2000 yrly increases; prtnr oppor; MW.
P & N: (g) Psy; hd dept; excl grp, 10 Dipls, various specialists; $18-20,000; W. (h) Neuro; assn w/neurosurg, oper, g 2 ofcs, Los Angeles area.
RADIOLOGY: (e) Asst; dept apprvd by US atomic commission, isotope trng; can fulfill requirmts 1st yr; active cardiac out-put rsrch; 3 yr apprvd rad trng prog; cancer prog; 20,000 diag, 3,000 x-ray, 250 isotope treatmts; 400 bd, genl hsp; NE.
STUDENT HEALTH: (i) Staff phys; univ 10,000 students; 12 mos—40 hr wk; very well-staffed & well equip'd clinic; plann'g new S. H. cntr w/clinic & 54 bd hsp; to $10,000; West Mtns.
SURGERY: (i) One w/Int Med or Ortho trng & interest trauma; assn, 18 man grp; $15,000; lge city, MW.
UROLOGY: (w) Hd dept; 10 Dipls, expndg to 20 men; oppor $20-25,000; early prtnr; Fla lic req'd.

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PEDIATRICIAN — BOARD ELIGIBLE; YOUNG PHYsician who has completed residency training; group association; 16 doctors; location, Wisconsin; community of 45,000. Box 8098 C, % AMA.

WANTED—PEDIATRICIAN; BOARD CERTIFIED OR Board eligible; to join growing group in Missouri; excellent working conditions and facilities; early chance at full partnership. Box 8097 C, % AMA.

ANESTHESIOLOGIST WANTED TO JOIN A GROUP in private practice in Long Island, New York. Please contact: Dr. Himel, P. O. Box 503, Port Jefferson, New York. C

WANTED — PART TIME UROLOGIST; ANYONE IN Lake County, Indiana or the Chicago-Harvey-Dolton-Chicago Hdghts-Lansing area that has a morning or two a week. Write Box 8096 C, % AMA.

WANTED — ANESTHESIOLOGIST FOR THORACIC surgical service, at least 2 years training required; citizenship not necessary. Apply: N. Levene, MD, State TB Hospital, Bluegrass Avenue, Louisville 15, Kentucky. C

ASSOCIATE PHYSICIAN FOR BUSY PRACTICE; pleasant suburban town on Connecticut shore; $1,000 per month; percentage to follow; eventual partnership. Box 8094 C, % AMA.

GENERAL PRACTITIONER—5 MEMBER GROUP; UP to 35 years old. Harold Peterson, MD, College Center Medical Group, 5950 El Cajon Boulevard, San Diego 15, California. C

PEDIATRICIAN & INTERNIST—URGENTLY NEEDED by expanding group in Kentucky town of 25,000; early partnership. Box 7100 C, % AMA.

GENERAL PRACTITIONER — EXCELLENT OPPORtunity with established group in growing town in Virginia, Box 8081 C, % AMA.

ANESTHESIOLOGISTS WANTED — FOR CENTRAL New Jersey private practice group; Boards or Boards eligible. Reply: Box 8099 C, % AMA.

RADIOLOGIST—BOARD ELIGIBLE OR DIPLOMATE; association with radiologist in office, clinic and hospital practice; southwest. Box 8091 C, % AMA.

DOCTOR WANTED—FOR NEW MODERN 20 BED hospital; telephone 4361 Edmore, North Dakota. C

INTERNIST—OR GENERAL PRACTITIONER WITH interest in internal medicine, for position of staff physician in new, completely equipped 250 bed general hospital in West Texas; pleasant climate all year round; excellent retirement plan, life insurance, annual leave, sick leave and other benefits; salary from $9,890 to $12,770 depending on qualifications, with regular increases to $13,970 plus 15 percent specialty allowance to maximum of $16,000 if Board Certified. Apply: Personnel Officer, Veterans Administration Hospital, Big Spring, Texas C

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PHYSICIANS WANTED—FOR CHICAGO AND SURrounding suburbs plus opportunities in all parts of the United States; many full and part time positions available in all specialties in industry; institutions; private associations and groups; Miss E. Ronni, our director of National placement; will be pleased to assist you in securing the position you want in the area you desire; for Chicago area call or write Mrs. N. Garland, Director, Garland Medical Placement 25 East Washington Street, Chicago 2, Illinois. ANdover 3-0145. All inquiries are confidential. C

GENERAL SURGEON—BOARD ELIGIBLE OR BOARD Certified preferred; at new, completely equipped 250 bed general hospital in west Texas; pleasant climate; excellent retirement plan, life insurance, annual leave, sick leave and other benefits; salary from $9,890 to $12,770 depending on qualifications, with regular increases to $13,970, plus 15 percent specialty allowance to maximum of $16,000 if Board Certified. Apply: Personnel Officer Veterans Administration Hospital, Big Spring, Texas. C

ASSISTANT DIRECTOR OF ANESTHESIOLOGY — Position open: 500 bed charity hospital; new building to be occupied January, 1960, well equipped, ten operating rooms; excellent training programs in all specialties, twenty interns; thirty-five residents; teaching program supervised by Board Certified physicians on staff; eligible for Board Certification, California license required; salary $1,096-$1,332; good climate; rapidly growing community. Contact: Medical Director, Santa Clara County Hospital, San Jose, California. C

MEDICAL EDITOR—POSITION OF ASSOCIATE EDitor, U. S. Armed Forces Medical Journal in Washington, D. C., applicants must be graduates of approved medical schools with minimum of 4 years' experience medically; editorial work; preferably on staff of medical journal or related professional periodical; competitive appointment under Federal civil service; starting salary $12,770. Forward curriculum vitae to: Bureau of Medicine and Surgery, Code 4531, Navy Department, Washington 25, D. C.

EPIDEMIOLOGIST, MD FOR POSITION IN LOS ANgeles County Health Department to act as advisor and consultant to Air Pollution Control District and other agencies combating smog; must have 3 years experience in diagnosis and control of communicable diseases of which one year in public health work. Apply: Los Angeles County Civil Service Commission, 501 N. Main Street, Los Angeles 12, California, telephone Madison 9-3521. C

PATHOLOGIST—BOARD CERTIFIED OR BOARD ELIgible for position of Chief, Laboratory Service; new, completely equipped 250 bed general hospital in west Texas; pleasant climate all year round; excellent retirement plan, life insurance, annual leave, sick leave and other benefits; salary from $11,373 to $14,685, depending on qualifications, with regular increases to $16,000. Apply: Personnel Officer, Veterans Administration Hospital, Big Springs, Texas. C

PHYSICIANS — ADMINISTRATIVE POSITIONS; INternational chemical and pharmaceutical manufacturer has unusual opportunities for physicians who are interested in combining medical background with administrative responsibilities; openings would utilize medical training and experience on a broad scientific level with advancement directed toward business management positions. Write full details including salary desired to: Box 7917 C, % AMA.

Internationally-minded physician to coordinate with investigators abroad all matters related to clinical evaluation of new drugs and serve as liaison with the medical profession in foreign countries. Position located in New Jersey, with the possibility of some travel abroad in the future.

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PHYSICIANS WANTED — QUALIFIED PHYSICIANS needed to work with psychiatric patients in 2,400 bed hospital+ near Chicago; salary range $6,505 to $13,970, depending upon qualifications, plus 15% additional if Board Certified, not to exceed $16,000; approved three year psychiatric residency in collaboration with Northwestern University; citizenship required. Write: Manager, Veterans Administration Hospital, Downey, near Waukegan, Illinois. C

WANTED—PSYCHIATRIST; DIRECTOR OF COMMUnity mental health clinic; diplomate or Board Eligible, licensed in New York State; experienced, well trained, full time psychiatric social worker; one half-time psychiatric social worker, and psychologist on the staff; five full days per week; salary open; needed immediately. Give full qualifications to: Box 573, Olean, New York. C

GENERAL PRACTITIONER TO JOIN ESTABLISHED eastern Ohio group of young specialists and general practitioners; enthusiastic, academic atmosphere; opportunity to become full partner from start with no investment; paid annual vacation and study period; starting annual salary $11,500-$15,000 depending on training and experience; retirement program. Box 7979 C, % AMA.

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WANTED—ASSISTANT CHIEF ANAESTHESIOLOGY; 712 bed GM&S hospital, accredited for residency training; Board certification or qualification required; opportunities for teaching and research; salary range $11,355 to $12,770 plus 15% for Board Certification; liberal leave and attractive retirement program. Address inquiries to: Director, Professional Services, U. S. Veterans Administration Hospital, Oakland 12, California. C

MEDICAL ORGANIZATION HAS SALARIED POSItion for physician interested in working full time on permanent program of maintaining high standards of drug and other product advertising in reputable medical journals; some special training in internal medicine or pharmacology desirable; initial reply must include summary of personal and military background as well as references. Box 7370 C, % AMA.

WANTED—PHYSICIAN TO ASSOCIATE WITH SIX man group caring for mining company's employees and families; includes general practice, obstetrics, anesthesia, surgery and industrial work; salary $10,000 to start; no expenses; living conditions good; excellent schools; immediate opening. Call or write: N. W. Stewart, MD, Chief Surgeon, Homestake Hospital, Lead, South Dakota. C

WANTED—ORTHOPEDIST; CERTIFIED OR BOARD Eligible; middle sized group in Illinois; salary open; early partnership; please give full details of qualifications and so forth. Box 7813 C, % AMA.

(Continued on next page)

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Preferably Board-certified or Board-eligible in preventive medicine (occupational medicine). To develop industrial medical service as part of company's general medical program. Liberal benefit program; modern family housing; plus educational and recreational facilities available. Write outlining personal and professional history.

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WANTED—GENERAL PRACTITIONER FOR COMMUNITY in northern Wisconsin recreational area; practice established twenty-five years; doctor retiring; no doctor within twenty miles; large home and office combined for sale or rent with or without office equipment; terms arranged. Write: Ogema Lions Club, Ogema, Wisconsin. C

WANTED—INTERNIST; 254 BED GENERAL MEDICAL and surgical hospital; supervised by Board Certified physician and approved for preceptorship training; hospital located at home of University of Arkansas and in the heart of the Ozarks. Contact: Manager, Veterans Administration Hospital, Fayetteville, Arkansas. C

ORTHOPAEDIC SURGEON — YOUNGER CERTIFIED established orthopaedic surgeon, Chicago, desires qualified or Certified associate; excellent hospital facilities and expanding practice; adequate vacation and meeting time; minimal emergency work; $12,000-$15,000 plus bonus potential to start. Box 8027 C, % AMA.

OBSTETRICIAN-GYNECOLOGIST WANTED — EXcellent opportunity, progressive medical group, community 10,000; area 40,000; new air-conditioned, fully equipped building; partnership after first year; good hospital facilities; 40 or under; Board qualified. Box 8049 C, % AMA.

UROLOGIST—BOARD OR ELIGIBLE FOR CHIEF, OF Section in active 450 bed GM&S hospital, salary to $16,000 depending on qualifications; citizenship required; liberal vacation and retirement benefits; desirable community. Contact: Manager, Veterans Administration Center, Shreveport, Louisiana. C

GENERAL PRACTITIONER—DESIRING EARLY AND permanent group practice association; capable of good obstetrics and internal medicine; starting salary later; partnership. The Palm Springs Medical Clinic, 1091 N. Palm Canyon, Palm Springs, California, Fairview 4-1331. C

WANTED—A SUCCESSOR FOR MY WELL ESTABlished and lucrative office practice in city of 150,000 in central Pennsylvania; practice easily transferrable; retiring on account of ill health; will be happy to furnish additional information if you really mean business. Box 7909 C, % AMA.

INDUSTRIAL PHYSICIAN TO DIRECT INDUSTRIAL medicine program with opportunity to perform some toxicological research in a new field within the chemical industry; must be U. S. citizen; New York state location. Send complete resume, and salary requirements to: Box 7540 C, % AMA.

GENERAL PRACTITIONER—TO JOIN ESTABLISHED group in private practice, college town, drawing population 20,000; offices available; hospital same building; no initial investment; above average income. Write: Dr. R. Lee Cooper, Warrensburg Medical Center, Warrensburg, Missouri. C

PEDIATRICIAN — YOUNG MALE; UNIVERSITY trained; certified or Board eligible; established 7 man specialty group with university affiliation needs third pediatrician; salary plus percentage; early partnership. The Buckhead Clinic, 3451 Peachtree Road, N.E., Atlanta 5, Georgia. C

WANTED — INTERNISTS; BOARD CERTIFIED OR Board eligible if well qualified; also vacancy in pulmonary tuberculosis; must be United States citizen; foreign graduates eligible if on approved list. Write: Manager, Veterans Administration Consolidated Center, Wadsworth (Leavenworth), Kansas. C

HOUSE PHYSICIANS—NEEDED JULY 1ST; 230 BED general hospital; serving suburban and industrial communities in Pittsburgh metropolitan area; must have Pennsylvania license; salary $650 per month; apartment available. Write: Administrator, Sewickley Valley Hospital, Sewickley, Pennsylvania. C

WANTED—GENERAL PRACTITIONER; EXCELLENT opportunity if qualified for Indiana license, also one primarily interested in obstetrics and pediatrics; in association with a group of 5 MD's doing a private and industrial practice; 25 miles south of Chicago Loop in the State of Indiana. Box 7459 C, % AMA.

WANTED—PSYCHIATRISTS; BOARD ELIGIBLE OR Certified; under 50 years of age; Deans Committee hospital 28 miles from Kansas City by turnpike; cost of living in area comparably less than elsewhere. Write: Director Professional Services, Veterans Administration Consolidated Center, Wadsworth, Kansas. C

(Continued from preceding page)

MEDICAL STAFF DESIRES TO ATTRACT INTERNist, otolaryngologist, ophthalmologist and anesthesiologist to supplement existing specialties; growing community of 12,000; 50,000 in county; 120,000 in trade area, in south Illinois near Crab Orchard Lake; 6 year old hospital is planning expansion; send complete background and qualifications in first letter. Box 0017 C, % AMA.

OTOLARYNGOLOGIST WANTED—IF YOU ARE AN ear, nose and throat specialist, don't fail to write for particulars regarding the position which is now open for an otolaryngologist; this position offers the right man a chance to work in a busy office; excellent location; top notch salary; yearly advancement and early partnership. Reply at once to: Box 7993 C, % AMA.

PSYCHIATRISTS — NEUROLOGISTS; FULL TIME; part time; both treatment and examination positions; requirements; completion of residency; beginning salary $10,000-$14,700 depending on qualifications. Apply Vaco #10, 128 N. Broad St., Philadelphia 2, Pa. Attention: Chief Neuropsychiatrist, LO 8-0400, Extension 140. C

WANTED — OTOLARYNGOLOGIST TO SERVE AS full time chief of section in 950 bed general hospital; U. S. citizenship required; Board Certified or eligible preferred; starting salary range up to $14,885 with sickness, retirement benefits, etc. Apply: Chief, Surgical Service, VA Hospital, East Orange, New Jersey. C

GENERAL PRACTITIONER — CENTRAL NEW YORK State; established practice; dairy area; some industry; 6,000 people radius 8 miles; modern school; good roads; lake; golf; 25 bed community hospital in town; open staff, surgical privileges; home office combination, rent, purchase, easy terms; no investment; no charge for practice; specializing. Box 7939 C, % AMA.

WANTED—BOARD CERTIFIED ORTHOPEDIC SURgeon; for full time hospital practice in professional care program of the Miners Memorial Hospitals; starting compensation $20,000-$22,000; progressive pay scale. For details address: The Clinical Director, Miners Memorial Hospital Association, 1427 Eye Street, N. W., Washington, D. C. C

PHYSICIANS FOR ADMITTING AND EMERGENCY ward for a large university and teaching hospital; excellent experience for physician interested in a university hospital; good salary and liberal fringe benefits. Please direct inquiries to: Administrator, H. N. Hooper, Cincinnati General Hospital, 3231 Burnet Avenue, enclosing a copy of your credentials. C

STAFF PHYSICIAN — LARGE SOUTH-CENTRAL Tuberculosis Sanatorium; licensure necessary; salary range $7,560 to $9,120 depending upon experience; complete family maintenance, including modern 2 bedroom home. Box 7989 C, % AMA.

WANTED — FULL TIME INDUSTRIAL PHYSICIAN for transportation company; good salary and excellent working conditions. Address: Box 8003 C, % AMA.

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(Continued on page 262)

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(Continued from page 260)

WANTED—GENERAL PRACTITIONER; UNDER 40; interested in internal medicine, to replace partner; well established practice, own building, fully equipped office; association without obligation on equal partnership basis; industrial community; Illinois; opposite St. Louis, Missouri. Box 7971 C, % AMA.

WANTED—PEDIATRICIAN; DIPLOMATE OR BOARD Eligible with service motive to join group of 10; college town, Allegheny foothills; new hospital with cobalt-60 teletherapy, radioisotope service, educational programs in surgery, nursing, laboratory and radiologic technology; early partnership. Box 7908 C, % AMA.

WANTED—PEDIATRICIAN AND OTOLARYNGOLOGIST to start departments in a twenty member clinic with most of the specialties represented; central and new suburban division in large southern city; salary for three years then partnership if qualified. Box 7925 C, % AMA.

GENERAL PRACTICE FOR SALE—MARYLAND; ESTABLISHED 10 years; well equipped office; complete files; low rent; gross over $25,000 last three years; hospital facilities for obstetrics, surgery; good location semi-rural area; practitioner over 35 best suited. Reply: Box 7996 C, % AMA.

WANTED — ENT MAN; ESTABLISHED GROUP IN Indiana; Board qualified or eligible; salary open; excellent future practicing with well trained men. Box 8071 C, % AMA.

WANTED — OBSTETRICIAN-GYNECOLOGIST; TO establish own practice; in office with established diplomate; Philadelphia area; references; training; state amount financial help needed for one year; permanent association if satisfactory or partnership. Box 7897 C, % AMA.

ORTHOPEDIC SURGEON; BOARD CERTIFIED OR qualified; to head department in well established 17 physician group in north midwestern college town of 50,000; new building; salary range $15,000 to $18,000; early partnership; send complete details. Box 8007 C, % AMA.

WANTED—BOARD CERTIFIED RADIOLOGIST; FOR full time hospital practice in professional care program of the Miners Memorial Hospitals; starting compensation $20,000; progressive pay scale. For details address: The Clinical Director, Miners Memorial Hospital Association, 1427 Eye Street, N.W., Washington 5, D.C. C

INTERNIST—CERTIFIED OR QUALIFIED AS STAFF physician in 386 bed affiliated hospital; citizenship required; salary range $9,890 to $14,685; depending on experience or certification. Write: Director, Professional Services, Veterans Administration Hospital, Des Moines, Iowa. C

UNIVERSITY HEALTH PHYSICIAN POSITION available July 1; male doctor preferred; excellent diagnostic and therapeutic facilities; excellent growth and advancement potential; Cleveland-Akron area. Write to: Director, University Health Service, Kent State University, Kent, Ohio. C

INDUSTRIAL STAFF PHYSICIAN

A major Southern California (not Los Angeles) missile engineering and manufacturing organization with modern, progressive medical facilities, requires a staff physician. This man should be physically and mentally active, and desirous of making industrial medicine his career. A California license is necessary, but industrial experience is not required.

Salary is in the range of $13,000 per year, and we offer liberal fringe benefits. Please send detailed resume of training, experience and general background to Box 8047 C, c/o A. M. A.

CITY OF SPRINGFIELD, MASSACHUSETTS, SEEKS services of Chief of Professional Services and 4 staff physicians for new chronic disease hospital; salary open. Address applications to: Personnel Director, City Hall, state training, experience and salary desired. C

WANTED — YOUNG GENERAL PRACTITIONER OR internist; association with two physicians; partnership; well established clinic, southern West Virginia; open staff hospital same city; salary $12,000; percentage or partnership later. Box 8032 C, % AMA.

PHYSICIAN WANTED—ACTIVE MEDICAL SERVICE; average salary $8,330 to $11,355 but higher with additional qualifications; liberal fringe benefits; resort city on Lake Erie. Write: Manager, Veterans Administration Hospital, Erie, Pennsylvania. C

ORTHOPEDIST OR GENERAL SURGEON — BOARD Certification not required; active GM&S hospital; salary range $9,860 to $16 000, depending on qualifications; excellent fringe benefits. Apply: Manager, Veterans Administration Hospital, Poplar Bluff, Missouri. C

OPENING ON STAFF FOR MALE PHYSICIAN INtending career in occupational medicine; graduate approved school, not over 45; progressive chemical company, Baton Rouge, Louisiana; submit detailed qualifications in first letter. Box 8066 C, % AMA.

WANTED—PEDIATRICIAN; BOARD ELIGIBLE OR Certified; to join two other pediatricians in southeastern city; eventual full partnership; new office building; affiliation with community hospital. Box 8051 C, % AMA.

OTOLARYNGOLOGIST—CERTIFIED OR BOARD ELIgible for association with group of Certified members; starting salary, open. Forward curriculum vitae to: Dr. E. W. Erickson, The Lynn Clinic, Detroit 17, Michigan. C

ASSISTANT CHIEF — RADIOLOGY SERVICE FOR Veterans Hospital, Atlanta, Georgia; a Deans Committee hospital affiliated with Emory Medical School; salary up to $16,000. Contact: Director Professional Services. C

GENERAL PRACTITIONER — YOUNG AND WELL trained to join active mixed group of 6 physicians; no obstetrics or surgery required; 35 miles from Chicago; $10,000 first year with bonus; early partnership. Box 7995 C, % AMA.

GROUP IN PACIFIC NORTHWEST HAS OPENING for pediatrician; starting salary for Certified man, about $15,000; partnership within two years; For further information, contact: Dr. Peter L. Hurst, Permanente Clinic, 2606 N. E. Broadway, Portland, Oregon. C

HOUSE PHYSICIAN — COMMENCE DUTY JULY 1, 1959; 332 bed general hospital; minimum salary $500 per month; Pennsylvania license required. Write: Chairman, Resident-Intern Committee, St. Joseph's Hospital, Lancaster, Pennsylvania. C

OBSTETRICIAN-GYNECOLOGIST UNIVERSITY trained, Certified, preferably academic affiliation; mature and experienced; to head division; midwest group of 17 certified members in various specialties; salary open. Send full particulars to: Box 7781 C, % AMA.

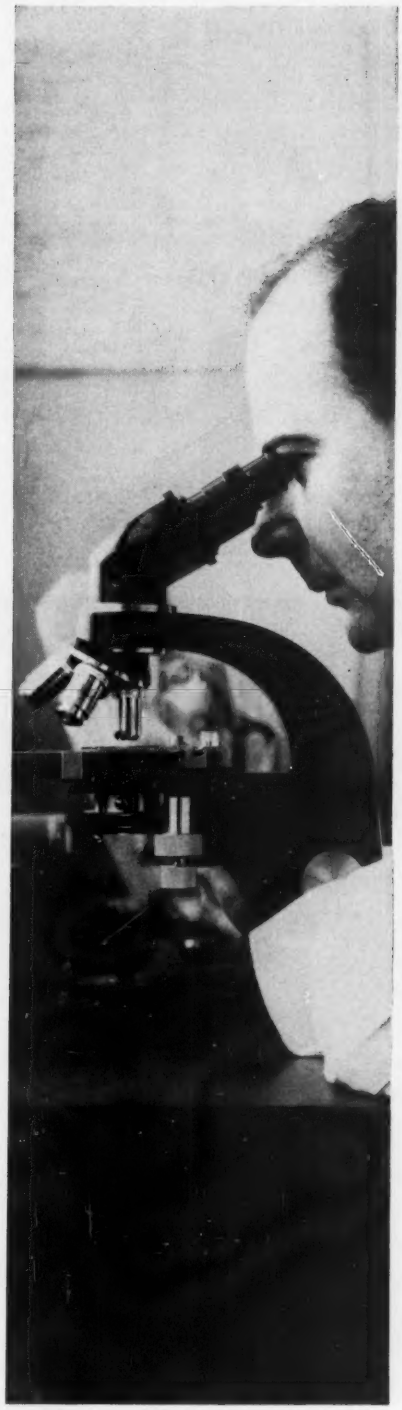
WANTED—CERTIFIED OR BOARD ELIGIBLE OBstetrician-gynecologist man to join a group of two who have a rapidly expanding practice in the twin cities of Minnesota; $12,000 to start; no investment with full partnership in five years. Box 7741 C, % AMA.

OTOLARYNGOLOGIST — URGENTLY NEEDED BY large southwest clinic group; Board Certified or Eligible for third ENT man; city of 175,000, rapidly expanding. Wire, phone, or write: Homer Reid, Lovelace Clinic, Albuquerque, New Mexico. C

CALIFORNIA MEDICAL BUREAU AGENCIES—FOR physicians placements and hospitals and medical properties for sale. 405 E. Green Street, Pasadena, California, and 610 S. Broadway Street, Los Angeles 14, California. C

PEDIATRICIAN WANTED—ESTABLISHED 14 MAN group in Indiana needs second man in department; Board qualified or Eligible; starting salary $15,000 with stable future practicing with well trained men. Box 7319 C, % AMA.

(Continued on page 266)



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1. Lehman, A. J.: J.A.M.A. *164*:416 (May 25) 1957.

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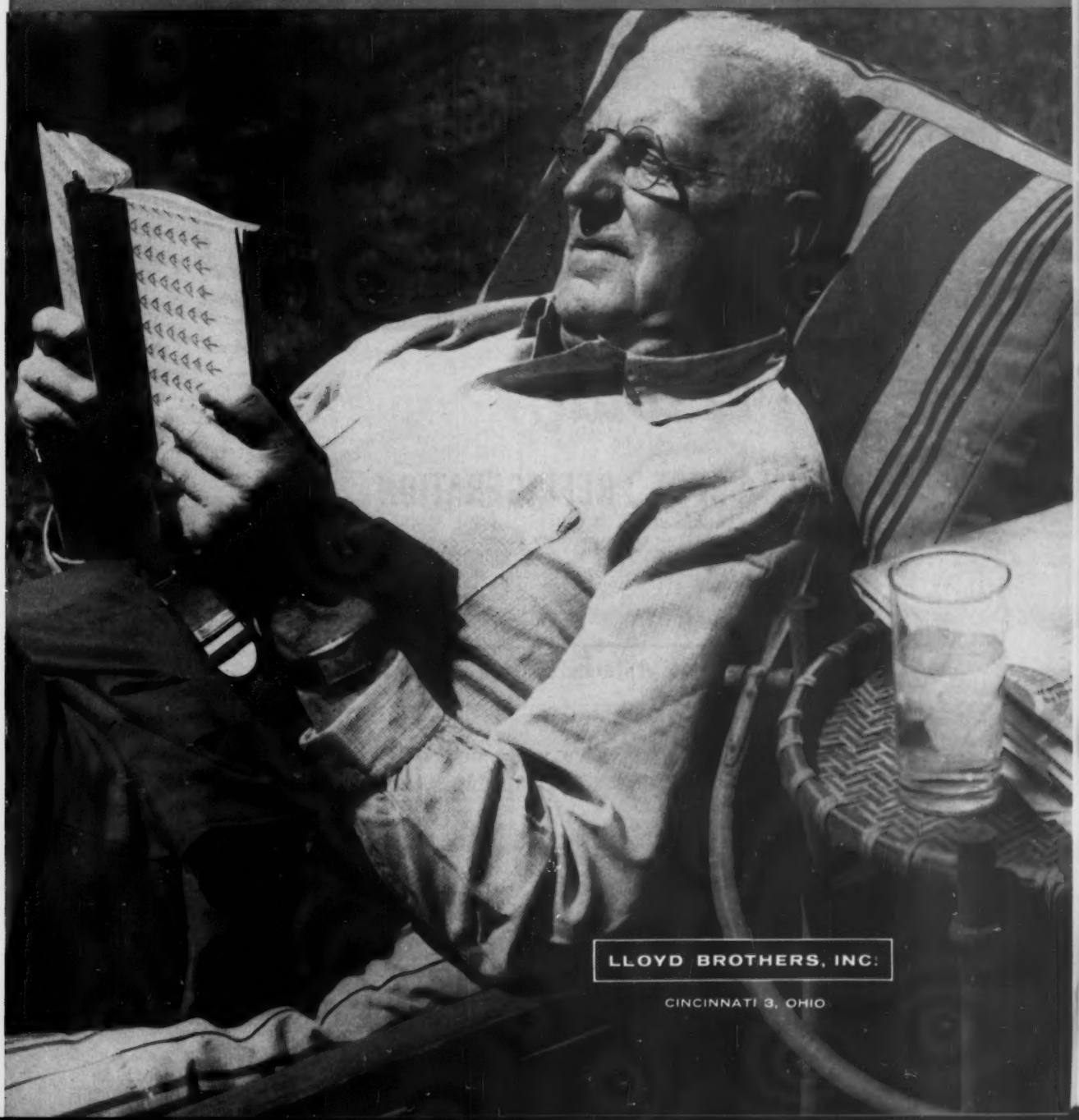

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(Continued from page 262)

INTERNIST — UNUSUAL OPPORTUNITY WITH large midwest pharmaceutical company; creative medical writing and clinical research; send full curriculum vitae; all correspondence confidential. Box 7666 C, % AMA.

GENERALIST—FOR SMALL OFFICE PRACTICE IN Bakersfield, California; ideal for older man desiring semi-retirement in desert climate; no investment. Write: L. O. Carpenter, MD, 910 Baker Street, Bakersfield, California. C

OPHTHALMOLOGIST—UNIVERSITY TRAINED; CERTified; preferably academic affiliation; mature and experienced; to head division; midwest group of 17 Certified members in various specialties; salary open. Send full particulars to: Box 7981 C, % AMA.

PHYSICIAN WANTED—GENERALIST; LOCATE IN small town; will turn over large obstetric practice to qualified doctor; nothing for sale; doctor desires semi-retirement; 20 minutes to open staff hospital. Dr. Kirksey, Mulberry, Arkansas. C

ELEVEN MAN MID IOWA GROUP NEEDS SECOND pediatrician; Board qualified; early partnership. Write: Box 8057 C, % AMA.

GENERALIST WANTED TO AUGMENT PRESENT DEpartment of family practice in 11 man mid-Iowa group; early partnership. Write: Box 8054 C, % AMA.

WANTED—OBSTETRICIAN-GYNECOLOGIST; ESTABlished 14 man group in Indiana needs third man in department; Board Qualified or eligible; salary open above $12,000; excellent future practicing with well trained men. Box 8006 C, % AMA.

WANTED—RECENT GRADUATE OR YOUNG PRACticing physician to join well known ear, nose, and throat specialist; no previous training necessary; salary very high from start. Write: Box 8059 C, % AMA.

WANTED—A YOUNG MAN, BOARD ELIGIBLE OR Board Certified; for the department of obstetrics and gynecology at the Jackson Clinic, Madison, Wisconsin, Arnold S. Jackson, MD. C

WANTED — PEDIATRICIAN TO HEAD PEDIATRIC section in a clinic in the south; must be Board Certified; early full partnership to right man. Box 8052 C, % AMA.

WANTED—TWO HOUSE PHYSICIANS 75 BED General hospital on the eastern seashore; nice climate; good fishing and hunting year round; good salary; apply immediately. Box 8040 C, % AMA.

FLORIDA — PHYSICIAN UNDER 35 WANTED TO associate with young general practitioner in Gulf coastal county of 8,000; Florida license required; new Hill-Burton Hospital; terms open. Box 8039 C, % AMA.

OPHTHALMOLOGIST — TO TAKE OVER A WELL established, active, high quality practice; excellent location in Portland, Oregon. Box 7974 C, % AMA.

ANESTHESIOLOGIST—BOARD ELIGIBLE OR CERTIfied; to join anesthesia staff; northern California hospital; 300 beds+, on individual fee for service basis. Write: Box 8046 C, % AMA.

PEDIATRICIAN-INTERNIST — BOARD QUALIFIED or Certified; full or part time for medical group in Staten Island; excellent opportunity; initial contract leading to partnership. Box 7984 C, % AMA.

PATHOLOGIST — TO TAKE CHARGE OF DEPARTment; 225 bed hospital in New York State; arrangement open; furnish resume of experience. Box 7973 C, % AMA.

YOUNG PHYSICIAN LICENSED NEW YORK STATE interested in association with a group providing Board specialists in all fields; excellent opportunity for further education. Box 7985 C, % AMA.

DOCTORS—BOY SCOUT CAMP; NEW YORK STATE licensed; July and/or August; $400-$450 month plus room and board. Boy Scouts of America, 33 West 60th Street, New York 23, New York, Plaza 7-1905.

WANTED—UROLOGIST TO BECOME ASSOCIATED with a full time group, middle Atlantic States; give full qualifications and other particulars in first communication. Box 7906 C, % AMA.

WANTED — OTOLARYNGOLOGIST; BOARD CERTIfied or qualified; excellent offer in fine Massachusetts community. Write details including any experience in mobilization and tympanoplas to: Box 8024 C, % AMA.

INTERNIST — BOARD ELIGIBLE OR CERTIFIED; sub-specialty desired but not necessary; clinic specialty group in midwestern university city. Box 7991 C, % AMA.

WANTED—ANESTHESIOLOGIST TO JOIN PRESENT staff of three; Connecticut license necessary; Board Eligible; percentage with guaranteed minimum. Reply: Box 7886 C, % AMA.

EXCELLENT OPPORTUNITY FOR YOUNG MAN IN general practice of medicine in Colorado; salary first year of association; desirous of young married man. Reply to: Box 7768 C, % AMA.

INTERNIST—UNDER 45; IMMEDIATE OPENING IN small hospital-clinic in progressive Arizona mining community; salary about $900 per month; insurance program nets additional $600. Box 7915 C, % AMA.

OTOLARYNGOLOGIST—BOARD ELIGIBLE OR CERTIfied; as associate in private practice in growing suburban New York Community; good salary and early partnership. Box 7930 C, % AMA.

WANTED — INTERNIST BY WELL ESTABLISHED clinic in North Dakota; excellent facilities; early full partnership; professional and personal data requested in reply. Box 7958 C, % AMA.

NEUROSURGEON NEEDS NEUROLOGIST FOR CITY serving 250,000 people with 1,000 hospital beds; excellent research facilities available. Box 8026 C, % AMA.

INTERNS AND RESIDENTS WANTED

The ★ signifies a hospital approved for internships and the + approved for residencies in specialties by the Council on Medical Education and Hospitals of the A. M. A. Consult Council's approved list for types of internships and residencies approved.

PSYCHIATRIC RESIDENCIES—IN 72 BED ACUTE psychiatric treatment center of a city general hospital; approved residencies at all levels of training with close individual supervision; emphasis on individual; group; ward milieu; drug and somatic therapies; special experience in ward administration; day hospital; after care clinic; psychosomatic service; child and outpatient psychiatry as well as neurology and EEG. Address inquiries: Robert H. Barnes, MD, Psychiatric Receiving Center, 2200 McCoy, Kansas City 8, Missouri. D

APPROVED THREE YEAR RADIOLOGY RESIDENCY at 500 bed general medical, surgical hospital+ and large outpatient service in medical center; affiliated with University of Illinois for supplemental therapy and Children's Memorial Hospital for pediatric radiology; supervised by Deans Committee representing University of Illinois, Stritch School of Medicine and Chicago Medical School; U. S. citizenship required. Apply: Director, Professional Services, Veterans Administration Hospital, 820 S. Damen, Chicago 12, Illinois. D

ANESTHESIOLOGY RESIDENCIES — APPROVED 2 year active teaching program with unusually wide clinical experience; opportunities for clinical, teaching and research appointments in hospital*+ and medical college after completion of training; approved internship required. Write: C. M. Landmesser, MD, Director of Anesthesiology, Albany Medical Center, Albany, New York. D

RADIOLOGY RESIDENCY—THREE YEAR APPROVED program in 1,300 bed general hospital+, affiliated with Baylor University College of Medicine, Texas Medical Center, complete training in diagnosis, therapy including supervoltage, and radioisotopes; must be U. S. citizens or graduates of U. S. or Canadian Medical Schools. Manager, Veterans Administration Hospital, Houston, Texas. D

RADIOLOGY RESIDENCY — APPROVED THREE year program; full time radiologists; beautiful quarters; stipend, etc; two vacancies as of July 1, 1959. Apply: A. Geffen, MD, Radiology Department, Beth Israel Hospital*+, 10 Nathan D. Perlman Place, New York, New York (3) D

RESIDENCIES AVAILABLE—CAREER OR REGULAR, in neurology psychiatry, PM&R, and anaesthesiology; affiliated with Medical College of Virginia; our residents have some of their training there; salaries: Career, $6,505 to $9,808 per annum, regular $3,250 to $4,165 per annum. Apply: Manager, Veterans Administration Hospital+, Richmond 16, Virginia. D

PEDIATRIC RESIDENCY—AMA APPROVED; VOLUNtary teaching hospital*+ affiliated with University medical school; now either year available; first year compensation $4,380, second year $4,680. Write: Saginaw General Hospital, Saginaw, Michigan. D

(Continued on page 269)

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(Continued from page 266)

1ST, 3RD, 4TH YEAR RESIDENCIES IN PATHOLOGY available; 419 beds; large teaching program, necropsy rate 75%; not an easy residency, but good training for one who wants to work. Address: Paul Weld, MD, Director of Medical Education, Rochester General Hospital*+, Rochester 21, New York. D

PEDIATRICS — ONE YEAR APPOINTMENT AVAILable in July offering unique opportunity in diagnosis and management of unusual and formidable problems. Director of Education, Cleveland Clinic Foundation*+, 2020 East 93rd Street, Cleveland 6, Ohio. D

GASTROENTEROLOGY—APPROVED PROGRAM; APpointment available July 1st at accredited residency level or as clinical associate; Ohio license required for latter. Director Education, Cleveland Clinic Foundation*+, 2020 East 93rd Street, Cleveland 6, Ohio. D

RESIDENCIES AVAILABLE—IN INTERNAL MEDIcine and obstetrics and gynecology; starting July 1, 1959; excellent stipend; approved residencies; intern quota filled; write: Director of Education, St. John Hospital, 22101 Moross Road, Detroit 36, Michigan. D

ANESTHESIOLOGY — OPENINGS FOR TWO RESIdents available July 1, 1959 two years fully approved; apply: George Rich, MD, Director of Anesthesiology, Lenox Hill Hospital*+, 111 East 76 Street, New York 21, New York. D

APPROVED ANESTHESIOLOGY RESIDENCY; ONE opening available July 1; open to graduates of approved medical schools; write to: Director of Medical Education, The Toledo Hospital*+, Toledo 6, Ohio. D

NEW YORK CITY—RESIDENTS; A PSYCHIATRIC service in a general hospital with approved three year training program; all para-medical services fully operative, located in the Greenwich Village section of New York City; physical plant modern, up-to-date, recently constructed; this general hospital consists of 830 beds covering all specialties, and including a current capacity of 82 beds in a psychiatric pavilion; affiliated with New York University-Bellevue Medical Center; residencies available at 1st and 3rd year levels. For further information, write: The Administrator, St. Vincent's Hospital*+ of the City of New York, 153 W. 11th Street, New York 11. Applications now being accepted for training year starting July 1, 1960. D

INTERNSHIP, ROTATING: AVAILABLE JULY 1, 1959, in approved 500 bed county charity hospital; teaching provided by active volunteer visiting staff of over 150 Board or Board eligible physicians; 1 and 2 bedroom furnished apartments available at $10 per month together with laundry and 2 meals per day; stipend $250 per month; malpractice insurance furnished; inquiries are invited from foreign students who have successfully completed the American Medical qualification examination given by the Educational Council for foreign medical graduates. For information contact: Superintendent, San Bernardino County Charity Hospital*+, 780 East Gilbert Street, San Bernardino, California. D

APPROVED THREE YEAR RESIDENCIES IN PSYchiatry; new GM&S hospital; well organized teaching program; affiliated with Washington University School of Medicine; all types of psychiatric experience represented, including supervised dynamically oriented psychotherapy, psychosomatic medicine, child guidance, etc.; approved training in psychoanalysis available locally; full time director of training is a member of the American Psychoanalytic Association; attractive career residency program available; citizenship required. Write to: Dr. Bernard A. Cruvant, Veterans Administration Hospital, 915 North Grand Avenue, St. Louis 6, Missouri. D

WANTED—PATHOLOGY RESIDENT; 250 BED GENeral hospital, Pacific northwest; close association with pathologist certified in clinical pathology and pathologic anatomy; also with chemist and bacteriologist; emphasis on training program in all branches including both academic and practical approach; 5,000 surgical tissues, 200 autopsies and 150,000 clinical tests annually; training in AMA approved school required or applicant must have passed AMA Intern Qualifying Examination; attractive outdoor recreational facilities include water skiing, fishing, hunting and snow skiing, salary open. Write: Ted E. Ludden, MD, Pathologist, Deaconess Hospital, Spokane, Washington. D

RESIDENCIES—MENNINGER SCHOOL OF PSYCHIAtry; approved three year program; balanced clinical and didactic training including psychotherapy and somatic therapies; out-patient and child psychiatry; at Veterans Administration, State and Menninger Hospitals; affiliated with Topeka Institute for psychoanalysis; five year appointments combining residency and staff experience for Board Eligibility available at staff salaries. Write: Registrar, Menninger School of Psychiatry, Topeka, Kansas. D

WANTED — ONE FIRST YEAR RESIDENT IN PAthology for July 1, 1959; graduate of U. S. or Canadian Class A medical school; 300 bed modern hospital with active graduate training program; full 4 year approval in P.A. and C.P.; 2 full time board pathologists; 2 board consultants; biochemist; microbiologist; topnotch progressive laboratory; 5042 surgicals and 165 autopsies in 1958; stipend $375.00; contact director of laboratories, McLaren General Hospital, Flint, Michigan. D

PATHOLOGY — CALIFORNIA; 1,500 BED HOSPITAL fully approved for 4 years training in clinical pathology and pathological anatomy; one vacancy exists in career resident program offering full staff pay ranging from $6,505 to $9,890 dependent on qualifications; complement of 8 residents supervised by four full time Certified pathologists with university affiliations. Write: Director, Professional Services, Veterans Administration Hospital, Long Beach 4, California. D

VACANCIES—SENIOR PHYSICIANS WITH MINIMUM of three years psychiatric experience; excellent opportunities for advancement; salary rate $7320-$10,200 depending upon applicant's training and experience; annual increments; nominal deduction for complete family maintenance; fully approved large eastern mental hospital+ with 3 year accredited residence training progress; must be eligible for licensure in Connecticut. Box 7977 D, % AMA.

POSITION AVAILABLE FOR APPROVED ROTATING internship: 400 bed general hospital*+; extensive teaching program; approved residency; $250 per month, maintenance, $50 living expenses for married interns. Inquire: Director of Medical Education, Providence Hospital, Seattle, Washington. D

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RESIDENCIES — INTERNAL MEDICINE; 1,300 BED general hospital+; 3 year; Baylor University College of Medicine affiliation; includes all specialties under supervision of Board Certified specialists; $3,250 to $4,945; must be graduate of United States or Canadian medical school; appointments available for 1960. H. D. Bennett, MD, Veterans Administration Hospital, Houston, Texas. D

STAFF PSYCHIATRISTS AND RESIDENTS—GRACIE Square Hospital; a new 232 bed private psychiatric hospital in midtown Manhattan has complete psychiatric; medical and surgical facilities for active treatment of all psychiatric disorders; appointments in all categories immediately available; first year residents start $4,000. Write: Leonard Cammer, MD, Director, 420 East 76th Street, New York 21, N. Y. D

RESIDENT—GENERAL SURGERY; CHIEF SURGEON in supervised residency in 3,500 bed mental hospital integrated with approved residency in 250 bed general hospital; $585 month; available July 1, 1959; 2 years approved residency or equivalent required. Write: W. C. Perdew, DD, Administrator, Bronson Methodist Hospital, Kalamazoo, Michigan. D

WANTED—FOR JULY 1ST FOR SOUTHERN HOSpital two junior assistant residents for fully approved four year surgical program with rotation through surgical specialties; applicants from approved schools desired; beginning stipend $2,400 increasing to $3,600 for fourth year; full maintenance. Box 7898 D, % AMA.

RADIOLOGY — THIRD YEAR RESIDENCY OPEN beginning January 1, 1960; stipend $300 plus room and board; active general hospital on eastern seaboard; department is staffed by three full time radiologists, physicist, and connected with medical school; only those with 2 years of good training need apply; state all particulars in first letter. Box 8030 D, % AMA.

RESIDENT—GENERAL SURGERY; 251 BED GENeral hospital; 2nd year of 3 year approved clinical program; university affiliation; $340 month; no maintenance; one year approved residency or equivalent required; available July 1, 1959. Write: W. C. Perdew, DD, Administrator, Bronson Methodist Hospital, Kalamazoo, Michigan. D

ROTATING INTERNSHIPS—APPROVED; AVAILABLE immediately; 375 bed hospital active teaching program; member exchange visitor program; candidates must be able to speak English fluently; stipend $200.00 per month plus full maintenance; apply: Chairman, Resident-Intern Committee, West Suburban Hospital, 518 North Austin Blvd., Oak Park, Illinois. D

RESIDENTS—GENERAL ONE YEAR ROTATING RESidency starting July 1, 1959 in accredited 174 bed general hospital; attractive mountain, seaside, resort city; United States citizenship; one year internship and eligibility for California license required; salary $560 per month. Apply: Director, County Hospital, Santa Cruz, California. D

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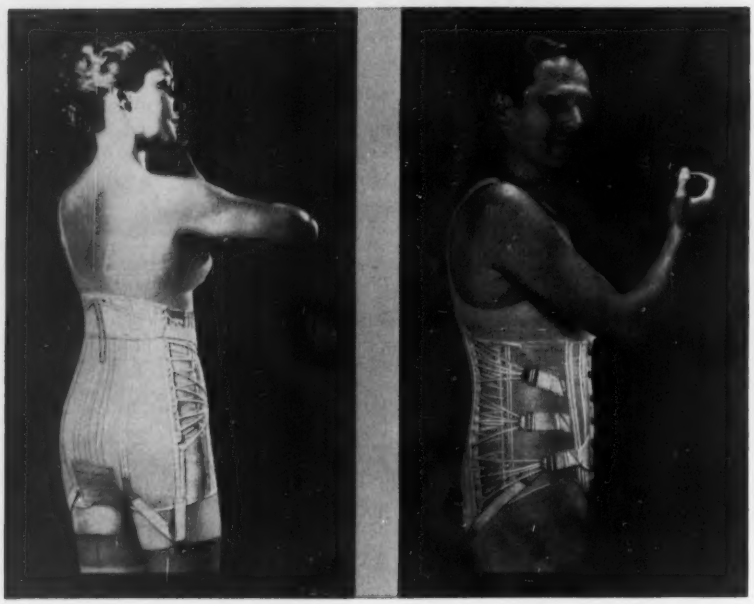

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INTERNSHIPS AVAILABLE—12 MONTHS ROTATING general including isotope, electroencephalogram and research laboratories; salary $250 per month plus full maintenance for single interns; some apartments available for married interns. Apply: Chairman, Resident-Intern Committee St. Joseph's Hospital*+, Lancaster, Pennsylvania. D

PATHOLOGY RESIDENCY — APPROVED 250 BED hospital in Brockton, Massachusetts; 23 miles from Boston; one day a week spent in Boston at teaching hospital; $250.00 per month plus maintenance; contact: Chief of Pathology, Brockton Hospital, Brockton, Mass. D

GENERAL PRACTICE RESIDENCY — AVAILABLE July 1, 1959; fully accredited by JCAH; closely affiliated with well known midwestern clinic; only graduates of approved medical schools or ECFMG Certified will be considered; salary $500 per month; excellent opportunities for future. Apply: Box 8029 D, % AMA.

ANESTHESIOLOGY RESIDENCIES—AT UNIVERSITY of Minnesota Hospitals, Minneapolis Veterans Administration Hospitals and associated hospitals; an opening every 4 weeks. Address: Frederick H. Van Bergen, MD, Director of Anesthesiology, University of Minnesota Hospital, Minneapolis, Minnesota. D

PEDIATRIC RESIDENCY AVAILABLE STATE UNIversity hospital in midwest; starting July 1, 1959; U. S. citizenship required. Box 7900 D, % AMA.

DERMATOLOGY—SECOND AND THIRD YEAR RESIdencies integrated teaching program leading to MS or DS degrees from Temple University; $100 per month with full maintenance. C. F. Burgoon, Medical Director, Skin and Cancer Hospital of Philadelphia+, Unit. Dept. of Dermatology, Temple University. D

WANTED—GENERAL PRACTICE RESIDENTS; 150 bed general hospital located in beautiful coastal community of 65,000; year round recreational activities; salary $660 per month; to begin July 1, 1959; must be U. S. citizen. Write to: Administrator, San Luis Obispo General Hospital, San Luis Obispo, California. D

APPROVED ROTATING INTERNSHIPS, 1959 TO 1960, in 196 bed general hospital; stipend $200 monthly; full maintenance; act've program. Russell Tyler, MD, Santa Fe Hospital, 610 South St. Louis Street, Los Angeles, California. D

RESIDENT PHYSICIAN—100 BED GENERAL HOSpital; near Boston; good salary; apartment for family; position available July 1, 1959; must be United States citizen or permanent resident. Write: Administrator, Symmes Hospital, Arlington 74, Massachusetts. D

RADIOLOGY RESIDENCY—THREE YEAR APPROVED program in eastern medical school, hospital 1,000 beds; $200 first, $225 second, $250 third year, plus full maintenance. Reply with all details in first letter. Box 7812 D, % AMA.

(Continued on page 289)

BOOKS RECEIVED

Books received by THE JOURNAL *are acknowledged in this column. Selections will be made for more extensive review in the interests of* THE JOURNAL *readers as space permits. Books listed in this department are not available for lending or sale through the American Medical Association.*

Transactions of the Ophthalmological Society of the United Kingdom, with which are Affiliated the Oxford Ophthalmological Congress, Midland Ophthalmological Society, North of England Ophthalmological Society, South-Western Ophthalmological Society, Southern Ophthalmological Society, Irish Ophthalmological Society, Scottish Ophthalmological Club, Ophthalmological Society of South Africa. Vol. LXXVIII: Session 1958, with List of Officers, Members, etc. Cloth. Pp. 740, with 194 illustrations. J. & A. Churchill, Ltd., 104 Gloucester Pl., Portman Sq., London, W. 1, England, 1958.

The Treatment of Diabetes Mellitus. By Elliott P. Joslin, A.M., M.D., Sc.D., Physician, New England Deaconess Hospital, Boston, Howard F. Root, M.D., H.H.D., Medical Director, Joslin Clinic, Priscilla White, M.D., Sc.D., Physician, New England Deaconess Hospital, and Alexander Marble, A.M., M.D., Physician, New England Deaconess Hospital. With cooperation of Dr. Robert F. Bradley and others, and associates in Joslin Clinic and Baker Clinical Research Laboratory, New England Deaconess Hospital. Tenth edition. Cloth. $16.50. Pp. 798, with illustrations. Lea & Febiger, Washington Sq., Philadelphia 6, 1959.

Proceedings of the Second World Congress on Fertility and Sterility. Vol. I and II. Edited by G. Tesauro, Professor of Obstetrics and Gynecology, Institute of Clinical Obstetrics and Gynecology, University of Naples, Naples. [Sponsored by International Fertility Association and Clinica ostetrica e ginecologica dell'Università di Napoli. In Italian, English, French, Spanish and German.] Cloth. Pp. 1389; 1559, with 816 illustrations. Institute of Clinical Obstetrics and Gynecology, University of Naples, Via S. Andrea delle Dame 19, Naples, Italy, 1958.

Tuberculosis Chart Series—1958 Revision. Material represents for most part data for calendar year 1957. Selected information from special studies is included. U. S. Department of Health, Education, and Welfare, Public Health Service, Bureau of State Services, Division of Special Health Studies, Tuberculosis Program. Public Health Service publication no. 639. Paper. 35 cents. No pagination. Superintendent of Documents, Govern. Print. Off., Washington 25, D. C., 1958.

Geographic Ophthalmology: Asia, Australia, and Africa. Edited by William John Holmes, M.D., Attending Ophthalmologist, St. Francis Hospital, Territorial Hospital, Hale Mohalu, and Kalaupapa Settlement, Hawaii. Cloth. $8.50. Pp. 293, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1959.

Modern Treatment Yearbook 1959: A Yearbook of Diagnosis and Treatment for the General Practitioner. Edited by Sir Cecil Wakeley, Bt., K.B.E., C.B., LL.D., M.Ch., D.Sc., Examiner in Surgery to University of Cambridge, Cambridge. Twenty-fifth edition. Cloth. $7. Pp. 312, with illustrations. Published for Medical Press by Baillière, Tindall & Cox, Ltd., 7 and 8 Henrietta St., Covent Garden, London, W. C. 2, England; Williams & Wilkins Company, 428 E. Preston St., Baltimore 2, 1959.

William Harvey: De motu locali animalium, 1627. Edited, translated and introduced by Gweneth Whitteridge, M.A., D.Phil., F.S.A., Archivist of St. Bartholomew's Hospital, London. Cloth. $10.50. Pp. 163, with 1 illustration. Cambridge University Press, Bentley House, 200 Euston Rd., London, N. W. 1, England; 32 E. 57th St., New York 22, 1959.

The Chemistry of Drugs. By Norman Evers, Ph.D., F.R.I.C., and Dennis Caldwell, B.Sc., F.R.I.C. Third edition. Cloth. $12.25. Pp. 415. Interscience Publishers, Inc., 250 Fifth Ave., New York 1, 1959.

(Continued on page 289)

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1. Bronstein, M.: A.M.A. Arch. Ophth. *57*:503, 1957.
2. Soss, T. L.: California Med. *87*:266, 1957.

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Letter 27:324 (May 21) 1
Dis. Chest 27:515, 1955.
Studies of metacortandrac
ternat. Conf. Meticorten,
Prensa med. Venezolana
Corona, L.: Meticorten e
quimico (Meticorten in th
cal study), Presented at
Janeiro, November 1955.
osteoarthrosis), First Pan
(16) Bianchi, W., and B
rheumatoid arthritis, Fir
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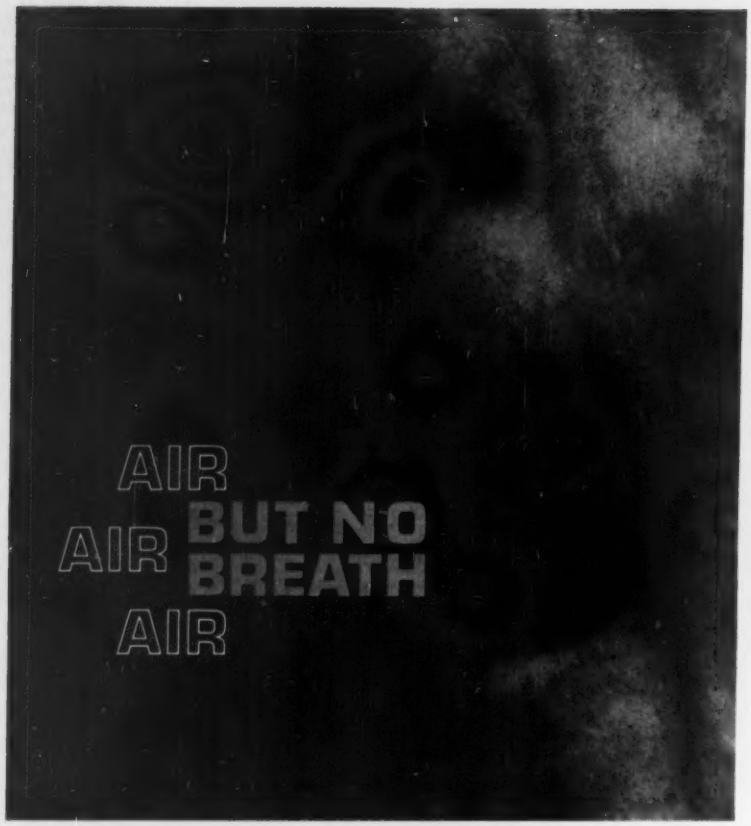

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FOR MIGRAINE

Complete, rapid migraine therapy

Ergotamine tartrate	1 mg.
Caffeine	100 mg.
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Acetophenetidin	130 mg.

Tablets and suppositories

*87.5% hyoscyamine and 12.5% atropine as sulfates.

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protects against anginal attacks
eases cardiac tension
RUSSEK: PETN is one of "... the most effective drugs currently available for prolonged prophylactic treatment of angina pectoris."[1] Prevents some 80% of anginal attacks.
RUSSEK: "ATARAX (is a drug of choice as a tranquilizer for the anxious cardiac)... because there is [minimal incidence] of side effects with this drug, and also because in cardiacs who are troubled with ectopic beats, ATARAX has a quinidine-like action."[2]
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Dosage: Begin with 1 to 2 yellow CARTRAX "10" tablets (10 mg. PETN plus 10 mg. ATARAX) 3 to 4 times daily. When indicated, this may be increased by switching to pink CARTRAX "20" tablets (20 mg. PETN plus 10 mg. ATARAX).

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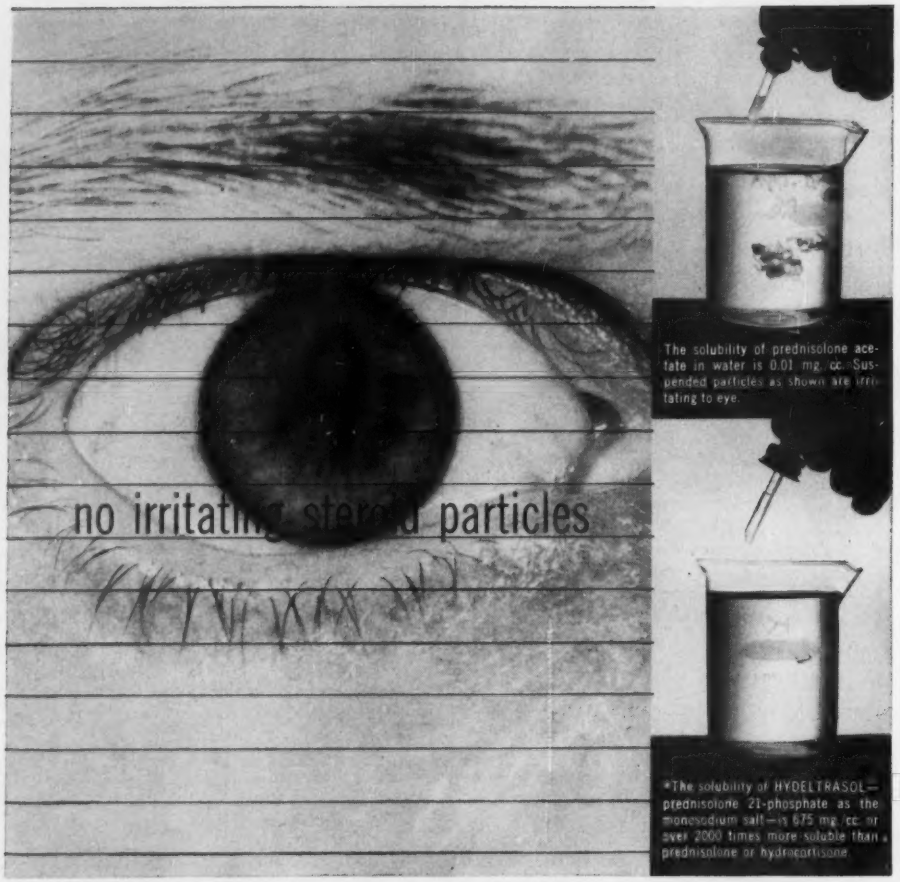
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The solubility of prednisolone acetate in water is 0.01 mg./cc. Suspended particles as shown are irritating to eye.
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For the control of anoxemia in status asthmaticus, which form of aminophylline therapy is indicated…rectal, oral or intravenous?

Either rectal or intravenous. The therapeutic efficacy of the drug is greater by these routes of administration. After the acute phase has passed, oral aminophylline may be administered.

Source—Koelsche, G. A.; Carryer, H. M.; Peters, G. A., and Henderson, L. L.: J.A.M.A. *166*:1541 (March 29) 1958.

in asthma, for acute attacks…day-to-day prophylaxis

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	AMINOPHYLLINE	PENTOBARBITAL SODIUM	BENZOCAINE
New ¼ Strength for children over 40 lbs. (18 Kg.)	0.125 Gm. (1⅞ gr.)	0.025 Gm. (⅜ gr.)	0.015 Gm. (¼ gr.)
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Full Strength for adults	0.5 Gm. (7½ gr.)	0.1 Gm. (1½ gr.)	0.06 Gm. (1 gr.)

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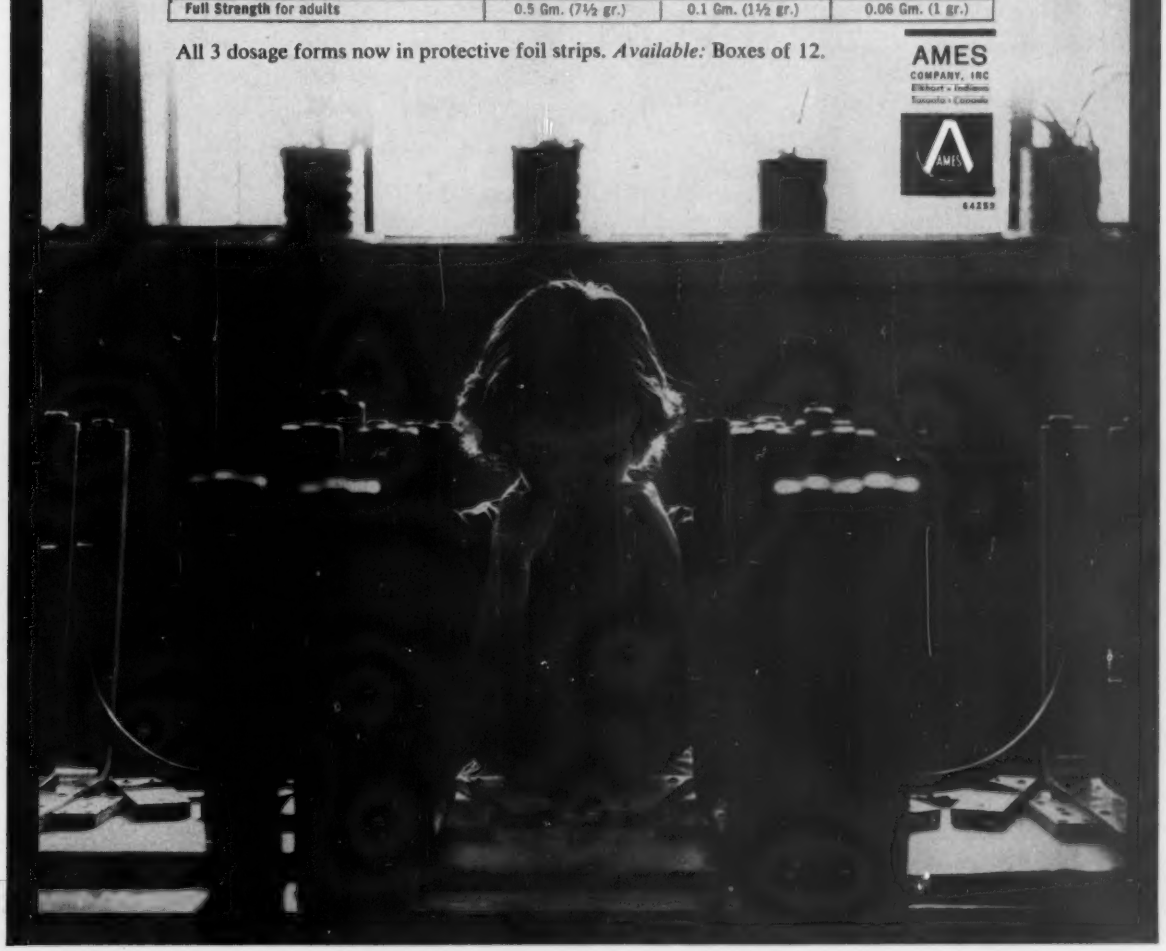

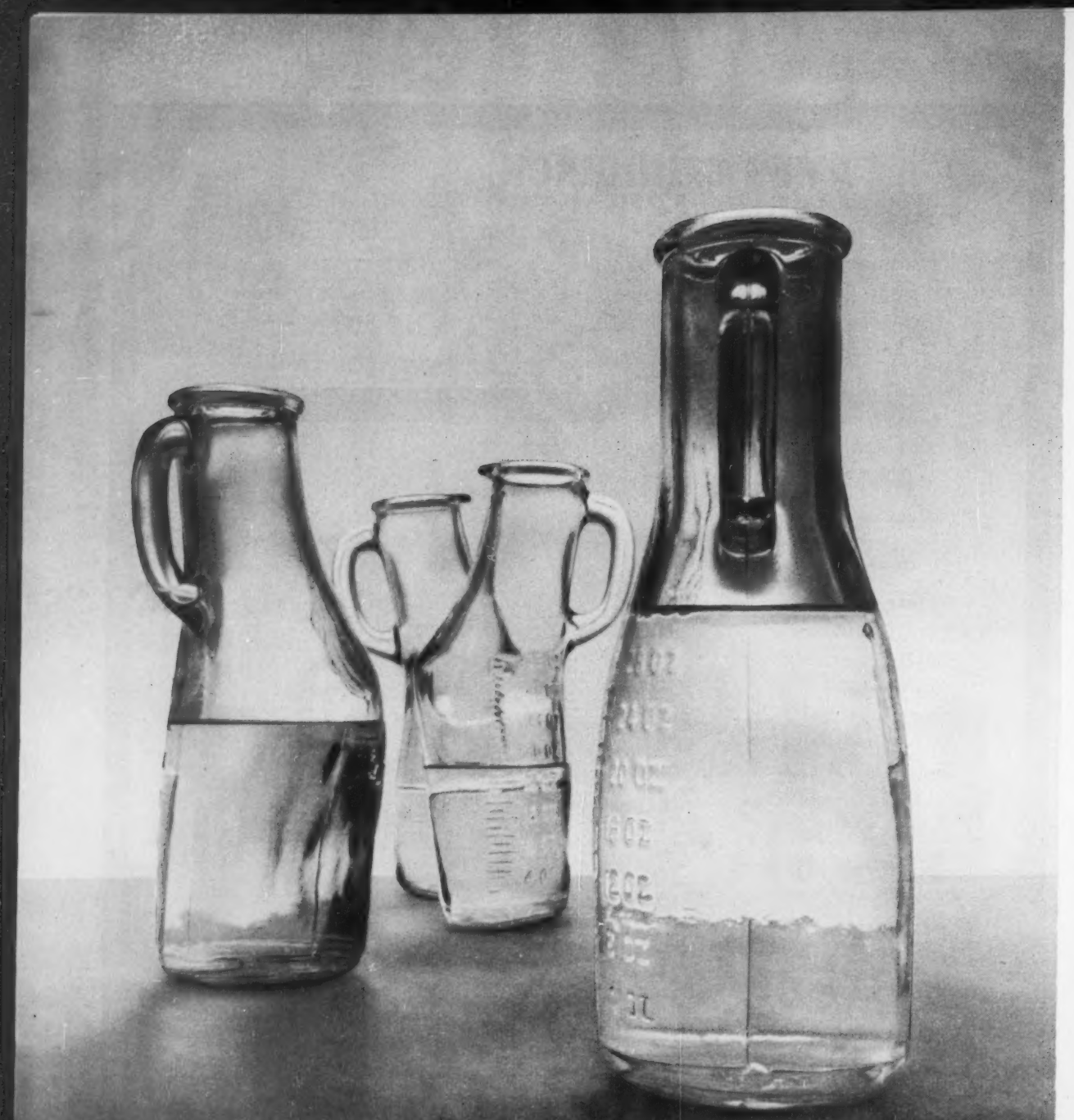

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milligram-for-milligram, the most active oral diuretic-antihypertensive

New diuretic-antihypertensive with high degree of activity, low toxicity

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Greater activity: Milligram-for-milligram, Esidrix is the most active oral diuretic known. With a therapeutic efficacy comparable to parenterally administered mercurials, Esidrix is at least 10 times more potent than chlorothiazide and therefore provides the same therapeutic benefits with but 1/10 the dosage —or even less.

Patients unresponsive to chlorothiazide and mercurials in certain cases respond readily to Esidrix.

Use in hypertension: Esidrix may be used alone or in combination with other antihypertensive drugs to bring about effective lowering of blood pressure. The drug potentiates the action of all other antihypertensive agents, including SINGOSERP, SERPASIL and APRESOLINE. Dosage (and side effects) of other agents often can be reduced when they are given with Esidrix.

Minimum dietary salt restriction: In many cases, Esidrix permits some moderation in severe sodium restriction and therefore makes meals more palatable. Side effects are usually not severe and most of them can be overcome by adjusting the electrolyte balance (through dietary supplements), lowering the dose or administering the drug after meals.

Dosage: Esidrix is administered orally in an average dose of 75 to 100 mg. daily, with a range of 25 to 200 mg. A single dose may be given in the morning or tablets may be administered 2 or 3 times a day.

Supplied: TABLETS, 25 mg. (pink, scored); bottles of 100.
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SINGOSERP® (syrosingopine CIBA)
SERPASIL® (reserpine CIBA)
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CIBA TV CLINICAL SYMPOSIA on HYPERTENSION

A notable telecast from the Cleveland Clinic. Watch your mail or hospital bulletin board for time and viewing locations.

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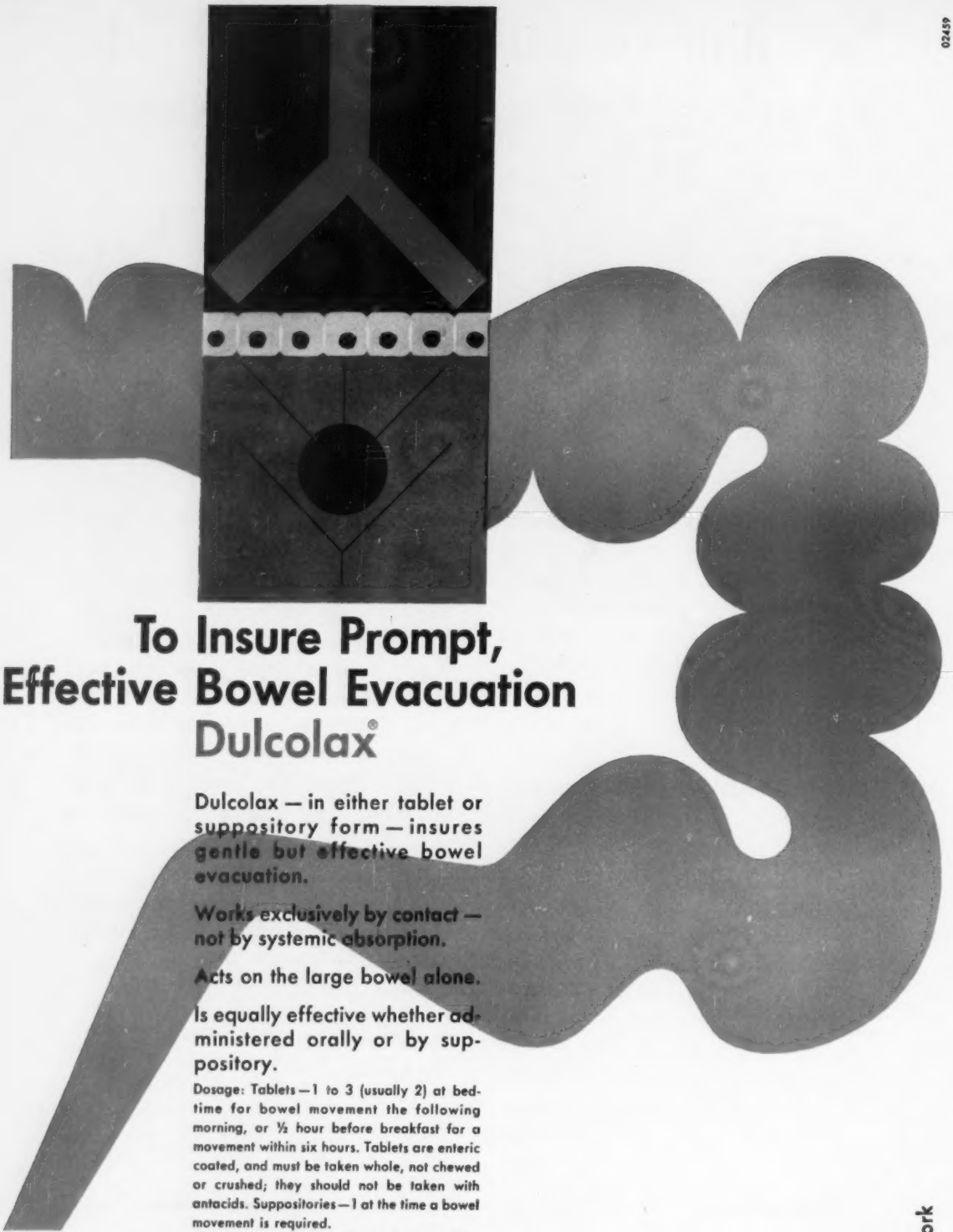


To Insure Prompt, Effective Bowel Evacuation

Dulcolax®

Dulcolax — in either tablet or suppository form — insures gentle but effective bowel evacuation.

Works exclusively by contact — not by systemic absorption.

Acts on the large bowel alone.

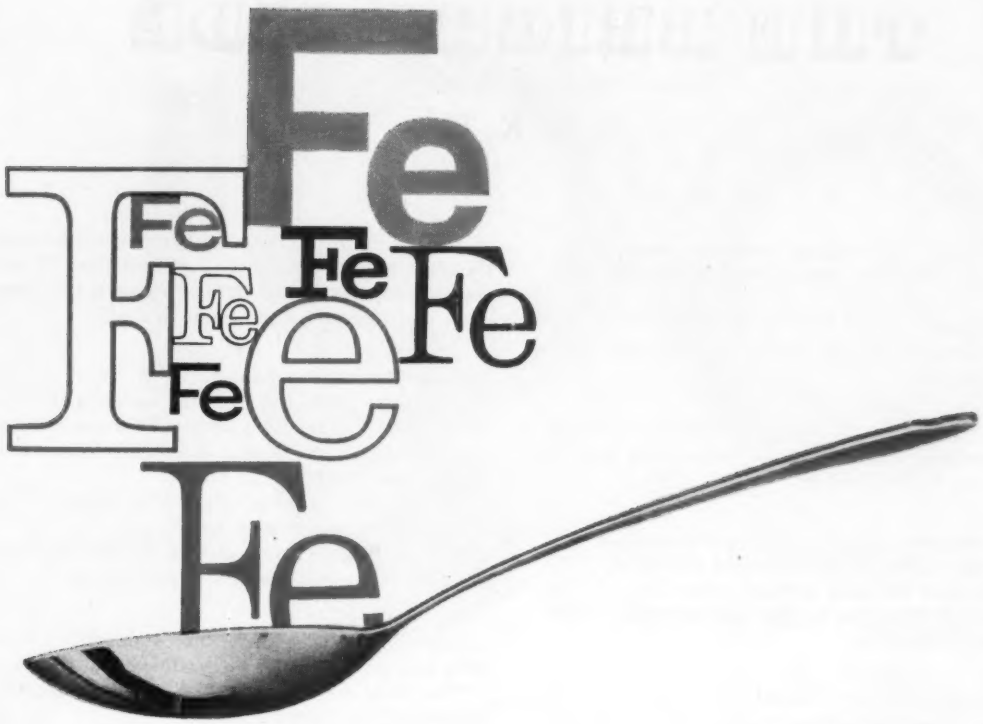
Is equally effective whether administered orally or by suppository.

Dosage: Tablets — 1 to 3 (usually 2) at bedtime for bowel movement the following morning, or ½ hour before breakfast for a movement within six hours. Tablets are enteric coated, and must be taken whole, not chewed or crushed; they should not be taken with antacids. Suppositories — 1 at the time a bowel movement is required.

Supplied: Dulcolax® (brand of bisacodyl). Yellow enteric-coated tablets of 5 mg. in boxes of 6 and bottles of 100. Suppositories of 10 mg. in boxes of 6. Under license from C. H. Boehringer Sohn, Ingelheim.

Contact Laxative

Geigy Ardsley, New York



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Gerber's exclusive cereal formulation includes a selected iron salt (iron pyrophosphate) which is easily absorbed by infants. And, it is absorbed as easily and to the same degree as the iron found in natural sources. (A clinical study* on Gerber Cereals substantiates this point.) To insure the most effective utilization of the iron, cereal grains which provide a good source of naturally occurring copper are used.

The experimentation which led to the Gerber Cereal formula is typical of Gerber's continuing program to further the cause of better infant nutrition.

Gerber® Baby Foods

FREMONT, MICHIGAN

*A.M.A. JOURNAL OF DISEASES OF CHILDREN, 95:109-113, 1958

THE BRIGHT SIDE

by E. K. H.

Bob Hope's been telling everyone, since his return from Moscow, about the fine service over there.

"For example," says Bob, "in my hotel every room had a television set—but instead of you watching it, *it* watches you!"

•

"What's all this talk about pay television coming in?" demands Dan Morgan. "I've always had it. I still owe $175 on my set."

•

A prominent director, on location with a big-name star, called his assistant over in disgust.

"Take that bit ham out and sober him up," he demanded. "He's got to play an important drunk scene this afternoon."

•

An actor, obviously loaded, telephoned a friend late one night and, sobbing bitterly, said he was going to commit suicide.

"That's nice," grumbled the other sleepily. "How ya gonna do it?"

"Sleeping pills," answered the actor, with a loud hiccup. "I've already started taking them."

"Hey!" cried his friend. "Wait, I'll be right over."

He jumped out of bed, into some clothes, and a few minutes later was in the thespian's flat, where he found his pal sprawled on the bed, a large bottle of pills on the table beside him.

"How many of these have you taken, you fool?" he demanded.

"Jus' three."

"Well, thank heavens. Three won't do you much harm."

"You don' unnerstan'," was the cotton-mouthed reply. "Firsht I gotta get some rest."

•

Handsome Victor Mature, who has probably played in more Biblical pictures than any other actor, was stopped on the street not long ago by a couple of cute teen-agers.

"Aren't you Victor Mature?" cried one. "You look just like him!"

"Well, yes, I am," smiled the actor modestly.

"Gee, Mr. Mature, I guess I've seen you in every one of your pictures—"The Egyptian," "Samson and Delilah," "The Robe," and all those—say, what are you—a religious fanatic or something?"

"It's getting so you have to watch these television Westerns mighty carefully," says Jack Paar. "I was reaching for the dial to change channels the other night and almost got my hand shot off."

•

Have you heard about the rich Texan (don't stop us) who arrived at the Fontainebleau Hotel in Miami Beach followed by several bellboys carrying skis, toboggans, sleds, etc.? Following them, came several brace of Alaskan huskies.

"Why, sir!" exclaimed the clerk aghast. "This is Florida. There's no snow here!"

"I know, I know," boomed the Texan. "It's coming right along with the rest of my luggage."

•

Robert Q. Lewis asked his producer what his wife had given him for his birthday that day.

"She gave me the perfect gift for the man who has everything," was the reply.

"What's that?" asked Lewis.

"Nothing!"

"If you had to be hit by a car why didn't you pick a Cadillac?"

100

a significant *Sanborn achievement in electrocardiographs*

VISO

the completely new, 2-speed

SANBORN Model 100 VISO-CARDIETTE

Here is an electrocardiograph in which *no detail* has been overlooked to give you diagnostically *accurate* information . . . the greatest possible operating *convenience* . . . and modern, *functional* attractiveness. With thirty-five years of experience, this is the finest electrocardiograph Sanborn Company has ever produced. Priced at eight hundred fifty dollars, delivered continental U. S. A.

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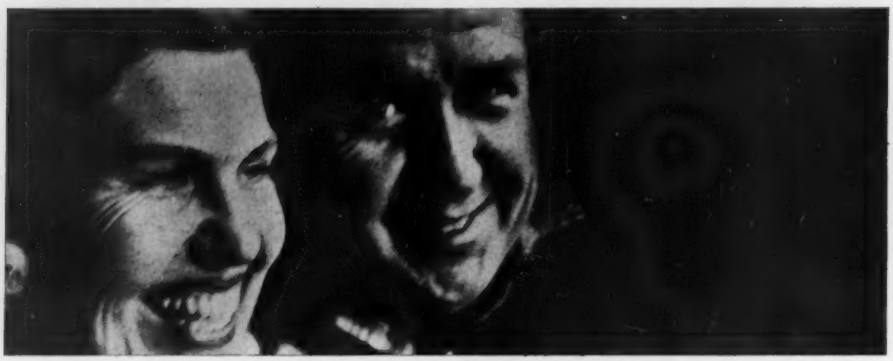
symptom-free menopause



withdrawal bleeding rare

TACE

(chlorotrianisene)

the long-acting oral estrogen

therapy that follows nature's course—TACE, unlike any other estrogen, stores itself in the patient's body fat. Released naturally... slowly, evenly... like a hormonal secretion, TACE provides prompt relief of menopausal symptoms plus sustained symptom-free maintenance because of the unique TACE depot effect.

smooth adjustment to postmenopause state—The longer-lasting estrogenic activity of TACE gently "attunes" the autonomic nervous system to lower estrogen levels. In this manner, TACE helps the troubled patient go through her "change-of-life" as smoothly as does the menopausal woman who has few physiologic problems. Withdrawal bleeding..."false periods"... are rarely encountered.

symptoms seldom recur—After cessation of therapy, most patients require no further treatment.

dosage—2 TACE capsules daily for thirty days can provide a symptom-free menopause. Additional courses may be given, if needed.

TRADEMARK: TACE®

Merrell
SINCE 1828

THE WM. S. MERRELL COMPANY
New York · CINCINNATI · St. Thomas, Ontario
Another Exclusive Product of Original Merrell Research

comfort for the sick child

Relieves Itching, Emesis, Coughing, Irritability in Childhood Illnesses

With Syrup PHENERGAN Fortis you can alleviate many of the discomforting symptoms of common childhood illnesses such as chickenpox, measles, upper respiratory infections, allergic conditions, and gastrointestinal disturbances.

Irritability, itching, nausea and functional vomiting, coughing and restlessness all may quickly be relieved by Syrup PHENERGAN Fortis.

The delicious cream-mint flavor of the syrup, and the relative freedom from side-reactions which it affords, assure the cooperation of both children and their parents.

Emerging as a drug of choice in field after field of medicine

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SYRUP
PHENERGAN® **FORTIS**
HYDROCHLORIDE
Promethazine Hydrochloride, Wyeth
SUPPLIED: Cream-mint flavored syrup in one-pint bottles. Each teaspoonful contains 25 mg. of promethazine hydrochloride.

With the growing complexity of modern therapeutics, complete and rapid dissemination of information on specific subjects has become increasingly more difficult. Frequently, important data are lost in the mass of current information directed to the physician. The need for brief supplementary data on antibiotics has been confirmed by Lederle's continuing and growing correspondence with doctors throughout the country.

Indeed, it was apparent that the inquiries received at Lederle might very well be the questions of many other physicians . . . or the comments and unique experiences could be the answers to questions asked by others. Publication of these letters with the replies or appropriate annotations appeared the logical vehicle for these supplementary data.

Lederle, therefore, offers ANTIBIOTICS FORUM . . . to be comprised of the pertinent communications routinely received by the Medical Services Department and published periodically in these two pages in the *J.A.M.A.* We believe you will find the FORUM a valuable and practical source of information.

ANTIBIOTICS & IMMUNE GLOBULIN

Dear Sir:
There is at the present time on my Ward Service . . . a 14-year old boy who has had a severe illness lasting over three months, starting with staphylococcal septicemia and arthritis and now continuing with multiple osteomyelitis. He has had all of the antibiotics now available on the market . . . without more than temporary benefit. I am wondering if you would have any new research preparation . . .
M.D.
Philadelphia, Pa.

. . . we have no other antibiotics available for your prescription . . . but if you haven't already tried the Poliomyelitis Immune Globulin, you might consider the possibility of using it. The reports on its use in conditions other than those for which claims have been made are not conclusive, but are suggestive. For example, Dr. J. F. Frawley in the *Texas State Journal of Medicine*, Sept. 1948, pp. 361-364, reported on the use of gamma globulin in primary typical virus pneumonia and other respiratory infections.

Drs. Harris and Schick also reported in the *J. Mt. Sinai Hospital*, 1954, pp. 148-161, on "The Use of Gamma Globulin in Infection Refractory to Antibiotics," . . .

At the Antibiotics Symposium in Sept. (1957), there were also several reports on the use of gamma globulin in conjunction with antibiotics with more favorable results . . .

Unfortunately, as of present there have been no sufficiently large series of clinical reports to justify any official recommendation for the use of gamma globulin in staphylococcal infections, but the data do look promising. . . .

THRUSH IN A NURSING INFANT

Dear Sir:
Is there a possibility of a one-month old infant, or any tiny infant, developing Thrush as a result of the mother having taken Achromycin for a given infection . . . would there be sufficient concentration in the mother's milk . . . ?
M.D.
Liberty Center, Ohio

In an antibiotic monograph . . . by Harry F. Dowling, it is stated that ". . . when mothers were given 0.5 Gm. of tetracycline 4 times a day, the concentration of tetracycline in their milk was usually half the concentration in their serum. No detectable concentrations could be found in the serum of nursing infants."

Thrush is usually produced by *Candida albicans* which is the monilial overgrowth . . . However, without detectable concentrations of tetracycline in the serum of the nursing infants, it seems very unlikely that local effects of a small amount of tetracycline in the mother's milk could produce thrush in the infant. Discovering the etiology of the thrush could be very difficult, but the patient's history may reveal systemic disease, dietary deficiency, or contact with irritants, contaminants, or allergens.

ACIDOSIS RE. CITRIC ACID BUFFER

Dear Sir:
. . . would like to know . . . if the citric acid (in Tetracycline V products) completely prevents absorption of all calcium and might cause acidosis in patients on long-term therapy.
M.D.
Sioux Falls, S. D.

. . . we feel that acidosis would not be a complicating factor. In the first place, citric acid prevents metallic ions from combining with tetracycline and interfering with its absorption. Citric acid combines not only with calcium, but also with other metallic ions, and when Achromycin V is ingested, the citric acid is present at that time but does not remain in the intestinal tract to take out calcium when food is ingested at other times. In fact, if the amount of citric acid in Achromycin V were to result in calcium deficiency, other foods rich in citric acid such as fruit juices, effervescent salts, beverages, etc., would have the same long-term effect. Since these foods and juices have not been implicated in calcium deficiency, there would appear to be little reason to expect the small amount of citric acid in Achromycin V Capsules to have any adverse effect on calcium levels or to result in acidosis.

I. V. DILUTIONS

Gentlemen:
Concerning the dilution of Achromycin I.V. . . . is it more efficacious when dissolved in 500 cc. than in 1000 cc. of fluid.
M.D.
Heber City, Utah

. . . when Aureomycin Chlortetracycline was introduced as an intravenous solution there was a problem of stability, and 500 cc. enabled the Aureomycin to be injected more rapidly than 1000 cc. and therefore there was less loss of potency. . . . Although Aureomycin and Achromycin are closely related there is a difference in stability in solution, and the difficulty encountered with Aureomycin does not apply with Achromycin I.V.; so that the physician may use 100 cc., 500 cc. or 1000 cc. of the latter without any material loss of potency. . . .

IN CASE OF ACHLORHYDRIA

Gentlemen:
. . . would like to know the effect of Achromycin with citric acid on a patient who is achlorhydric.
M.D.
Greensboro, North Carolina

The citric acid in Achromycin V might give some relief in certain borderline cases of achlorhydria, but we would not expect the small amount of citric acid . . . to serve as adequately as a replacement for the hydrochloric acid that is generally needed.

ACHROMYCIN® V Tetracycline with Citric Acid Lederle AUREOMYCIN® Chlortetracycline Lederle

LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York Lederle

KENA

for all your patients starting on corticoids

Kenacort provides these important advantages . . . excellent corticoid activity on a low dosage schedule[1-3] without edema,[1-4] psychic stimulation,[1-3] or adverse effect on blood pressure;[1-3,5] a low sodium diet is not necessary;[4,5] and gastrointestinal disturbances are usually negligible.[2,4,5] Because of these benefits, Kenacort starts all your patients off right — even your "problem" patients, such as the obese, the hypertensive, or the emotionally disturbed.

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Squibb Triamcinolone

for all your allergic* patients requiring corticoids

Kenacort usually provides rapid relief of allergic manifestations because of its potent antiallergic and anti-inflammatory activity. Kenacort often proves effective where other steroids have failed. For example, in bronchial asthma, Kenacort therapy improves ventilation and increases vital capacity;[2] dyspnea and bronchospasm are usually relieved within 48 hours; and sibilant râles frequently disappear. As in all indications, rapid clinical improvement is obtained on a low dosage schedule[1-3] without the development of edema,[1-4] elevated blood pressure[1-3,5] or psychic stimulation[1-3] — benefits that make Kenacort particularly useful for those allergic or asthmatic patients who are obese, have hypertension or are prone to psychic disturbances.

*ASTHMA AND ALLERGIES — major indications

SUPPLIED:
Scored tablets of 1 mg. — Bottles of 50
Scored tablets of 2 mg. — Bottles of 50
Scored tablets of 4 mg. — Bottles of 30 and 100

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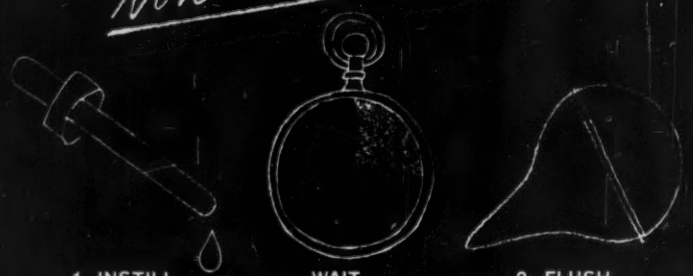

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(Books Received Continued)

Homemaker Services in the United States, 1958: A Nationwide Survey. By William H. Stewart, M.D., Maryland Y. Pennell, M.Sc., and Lucile M. Smith, B.A. U. S. Department of Health, Education, and Welfare, Public Health Service, Division of Public Health Methods. Public Health Service publication no. 644. Paper. 55 cents. Pp. 92; 8; 2; 4, with 3 illustrations. Superintendent of Documents, Govern. Print. Off., Washington 25, D. C., 1958.

Handbuch der Urologie (Encyclopedia of Urology). Edited by C. E. Alken, V. W. Dix, H. M. Weyrauch, and E. Wildbolz. Band VI: Endoscopy. By Roger W. Barnes, R. Theodore Bergman and Henry L. Hadley. [In English.] Cloth. 136 marks; subscription price 108.80 marks. Pp. 282, with 184 illustrations. Springer-Verlag, Heidelberger Platz 3, (1) Berlin-Wilmersdorf (West-Berlin); Neuenheimer Landstrasse 24, Heidelberg; Göttingen, Germany, 1959.

Reported Tuberculosis Data—1956: X-Rays Taken, New Cases Reported, Mortality. Prepared by Lawrence W. Shaw and Paul L. Roney. U. S. Department of Health, Education, and Welfare, Public Health Service, Bureau of State Services, Division of Special Health Services, Tuberculosis Program. Public Health Service publication no. 638. Paper. 25 cents. Pp. 25. Superintendent of Documents, Govern. Print. Off., Washington 25, D. C., 1959.

Reproduction and Infertility: III Symposium, Colorado State University, Fort Collins, Colorado. Editor, F. X. Gassner. Associate editors: Rue Jensen and H. J. Hill. Sponsored by College of Veterinary Medicine and Agricultural Experiment Station. Cloth. $6.50. Pp. 273, with illustrations. Pergamon Press, Inc., 122 E. 55th St., New York 22; 4 & 5 Fitzroy Sq., London, W. 1, England; 24 rue des Écoles, Paris 5e, France, 1958.

Handbuch der Thoraxchirurgie (Encyclopedia of Thoracic Surgery). Zweiter Band, spezieller Teil I. Herausgegeben von E. Derra. Bearbeitet von C. P. Bailey et al. [In German and English.] Cloth. 476 marks; subscription price 380.80 marks. Pp. 1207, with 750 illustrations. Springer-Verlag, Heidelberger Platz 3, (1) Berlin-Wilmersdorf (West-Berlin); Neuenheimer Landstrasse 24, Heidelberg; Göttingen, Germany, 1959.

The Symptom as Communication in Schizophrenia. Editor: Lt. Col. Kenneth L. Artiss, MC. Contributors: Lt. Col. Bruce L. Bushard, MC, Kai T. Erikson, M.A., David H. Marlowe, M.A., and Capt. Russell H. Rowe, MSC. Introduction by David McK. Rioch, M.D. Cloth. $5.75. Pp. 233, with illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16; 15/16 Queen St., Mayfair, London, W. 1, England, 1959.

Modern Trends in Diseases of the Vertebral Column. Edited by Reginald Nassim, B.M., F.R.C.P., Physician to St. George's Hospital, London, and H. Jackson Burrows, M.D., F.R.C.S., F.R.A.C.S., Orthopedic Surgeon to St. Bartholomew's Hospital, London. Cloth. $15. Pp. 292; 11, with 172 illustrations. Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd St., New York 16, 1959.

The Chemistry of Industrial Toxicology. By Hervey B. Elkins, Director, Division of Occupational Hygiene, Massachusetts Department of Labor and Industries, Boston. Second edition. Cloth. $11.50. Pp. 452, with 26 illustrations. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16; Chapman & Hall, Ltd., 37-39 Essex St., Strand, London, W. C. 2, England, 1959.

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Therapeutic Radiology: Rationale, Technique, Results. By William T. Moss, M.D., Assistant Professor of Radiology, Northwestern University School of Medicine, Chicago. With foreword by Lauren V. Ackerman, M.D. Cloth. $12.50. Pp. 403, with 146 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3; Henry Kimpton, 134 Great Portland St., London, W. 1, England, 1959.

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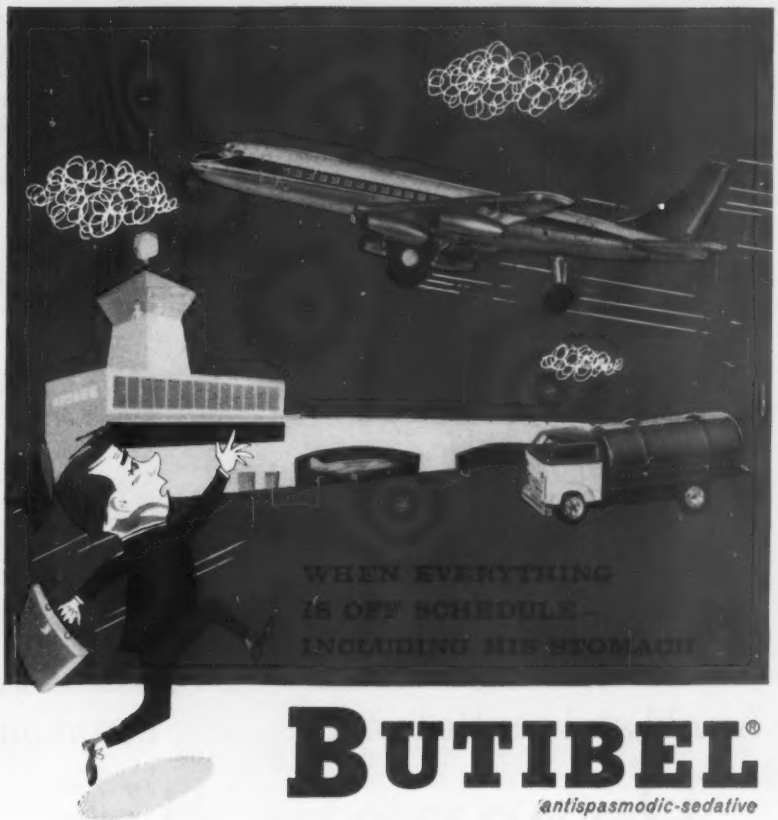

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PATHOLOGIST—CERTIFIED PA; AGE 40; FAMILY; desires to relocate Rocky Mountain, Pacific northwest, or western plains states; hospital or private lab, chief or associate. Box 8108 I, % AMA.

(Continued on page 294)

(Books Received Continued)

Modern Pharmacognosy. By Egil Ramstad, Ph.D., Professor of Pharmacognosy, School of Pharmacy, Purdue University, West Lafayette, Indiana. Cloth. $10.50. Pp. 480, with illustrations. Blakiston Division, McGraw-Hill Book Company, Inc., 330 W. 42 St., New York 36; 95 Farringdon St., London, E. C. 4, England; 253 Spadina Rd., Toronto 4, Canada, 1959.

Lehrbuch der Geburtshilfe. Von Prof. Dr. Heinrich Martius. Unter Mitarbeit von Prof. Dr. H. Hartl und Käthe Droysen. Fourth edition. Cloth. 59.70 marks; $14.20. Pp. 731, with 768 illustrations. Georg Thieme Verlag, Herdweg 63, (14a) Stuttgart, West Germany; [Intercontinental Medical Book Corporation, 381 Fourth Ave., New York 16], 1959.

Personality: Development and Assessment. By Charles M. Harsh, Head, Human Engineering Branch, U. S. Navy Electronics Laboratory, San Diego, and H. G. Schrickel, Professor of Psychology, State Teachers College, North Adams, Mass. Second edition. Cloth. $6.75. Pp. 536, with illustrations. Ronald Press Company, 15 E. 26th St., New York 10, 1959.

Mannerisms of Speech and Gestures in Everyday Life. By Sandor S. Feldman, M.D., Clinical Associate Professor of Psychiatry, Associate Psychiatrist, Department of Psychiatry, University of Rochester Medical Center, Rochester, New York. Cloth. $5. Pp. 301. International Universities Press, Inc., 227 W. 13 St., New York 11, 1959.

Surgery of the Stomach & Duodenum. By Claude E. Welch, M.D., D.Sc., Clinical Associate in Surgery, Harvard Medical School, Boston. Handbook of operative surgery. Third edition. Cloth. $9.75. Pp. 405, with illustrations by Muriel McLatchie Miller. Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11, 1959.

Praktische Hämatologie: Differentialdiagnose, Therapie, Methodik. Von Prof. Dr. H. Begemann und Dr. H.-G. Harwerth. Paper. 29.80 marks; $7.10. Pp. 264, with 25 illustrations. Georg Thieme Verlag, Herdweg 63, (14a) Stuttgart, West Germany; [Intercontinental Medical Book Corporation, 381 Fourth Ave., New York 16], 1959.

An Introduction to Physical Education. By Eugene W. Nixon and Frederick W. Cozens. Revised by John E. Nixon and Florence Stumpf Frederickson. Fifth edition. Cloth. $4.25. Pp. 287. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W. C. 2, England, 1959.

Group Processes: Transactions of the Fourth Conference, October 13, 14, 15, and 16, 1957, Princeton, N. J. Sponsored by Josiah Macy, Jr. Foundation, New York. Edited by Bertram Schaffner, M.D. Cloth. $4.50. Pp. 266, with 10 illustrations. Josiah Macy, Jr. Foundation, 16 W. 46th St., New York 36, 1959.

Chemie der Genetik. 9. Colloquium der Gesellschaft für physiologische Chemie, am 17./19. April 1958 in Mosbach/Baden. Paper. 28.60 marks. Pp. 173, with 61 illustrations. Springer-Verlag, Heidelberger Platz 3, (1) Berlin-Wilmersdorf (West-Berlin); Neuenheimer Landstrasse 24, Heidelberg; Göttingen, Germany, 1959.

Brennemann's Practice of Pediatrics. By various authors. Edited by Irvine McQuarrie, A.B., Ph.D., M.D., and Vincent C. Kelley, B.A., B.S., M.S., Professor of Pediatrics, University of Washington, Seattle. Revised pages for volume 4 and supplementary index. Loose-leaf. Various pagination. W. F. Prior Co., Hagerstown, Md., 1958.

Chirurgie der Arterien. Von Doz. Dr. K. Kremer. Mit einem Vorwort von Prof. Dr. Ernst Derra. Cloth. 59 marks; $14.05. Pp. 280, with 150 illustrations. Georg Thieme Verlag, Herdweg 63, (14a) Stuttgart, West Germany; [Intercontinental Medical Book Corporation, 381 Fourth Ave., New York 16], 1959.

The Mycoplasmataceae (The Pleuropneumonia Group of Organisms): Morphology, Biology and Taxonomy. By E. A. Freundt. Translated from Danish by H. Cowan, B.Sc. [Thesis, M.D., University of Copenhagen.] Paper. Pp. 147, with illustrations. Ejnar Munksgaard, Nørregade 6, Copenhagen, K, Denmark, 1958.

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Annual Review of Physiology. Volume 21. Victor E. Hall, editor. Frederick A. Fuhrman and Arthur C. Giese, associate editors. Cloth. $7 (U.S.A.); $7.50 (foreign). Pp. 636. Annual Reviews, Inc., Grant Ave., Palo Alto, Calif.; Maruzen Company, Ltd., 6, Tori-Nichome, Nihonbashi, Tokyo, Japan, 1959.

Dental-Medical Emergencies and Complications. By Ira Jay Berlove, D.D.S., M.D., F.A.C.D., Attending Surgeon and Chief of Maxillofacial and Oral Surgery Service, Misericordia Hospital, New York. Cloth. $7.50. Pp. 380. Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11, 1959.

A Survey of Medical Groups in Canada, 1954. Health care series memorandum no. 7. [With supplement of tables and discussion of statistical material.] Paper. Pp. 90; 62. Research and Statistics Division, Department of National Health and Welfare, Ottawa, Canada, 1958.

Inborn Errors of Metabolism. By David Yi-Yung Hsia, M.D., Associate Professor of Pediatrics, Northwestern University Medical School, Chicago. Cloth. $9.50. Pp. 358, with 127 illustrations. Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11, 1959.

Medical Education: Annotated Bibliography, 1946-1955. Cloth. 35 shillings; $6.75; 20 Swiss francs. Pp. 391. World Health Organization, Palais des nations, Geneva, Switzerland; Columbia University Press, International Documents Service, 2960 Broadway, New York 27, 1958.

Results of Treatment of Cancer in Saskatchewan 1943-52 (Inclusive). By T. A. Watson, M.B., Ch.B., D.M.R., Director of Cancer Services, Saskatchewan Cancer Commission, Regina. Paper. Pp. 76. Saskatchewan Cancer Commission, Regina, Saskatchewan, Canada, 1958.

Pediatric Neurology. By Stanley S. Lamm, M.D., Clinical Professor of Pediatrics, State University of New York, College of Medicine at New York City. Cloth. $12.90. Pp. 495, with 22 illustrations. Landsberger Medical Books, Inc., 51 E. 42nd St., New York, 1959.

Asexualization: A Follow-up Study of 244 Cases. By Johan Bremer, Medical Director, Gaustad Mental Hospital, Oslo, Norway. Cloth. $5.50. Pp. 366. The Macmillan Company, 60 Fifth Ave., New York 11; Oslo University Press, Oslo, Norway, 1959.

Blastogenese des Menschen. Von Dr. med. Karel Mazanec, Dozent der Histologie und Embryologie an der Universität Brno. Half cloth. 20.60 marks. Pp. 179, with 118 illustrations. VEB Gustav Fischer Verlag, Villengang 2, Jena, East Germany, 1959.

Health Insurance. By O. D. Dickerson, Ph.D., C.L.U., C.P.C.U. Irwin series in insurance. Editors: Edison L. Bowers and Davis W. Gregg. Cloth. $6. Pp. 500, with illustrations. Richard D. Irwin, Inc., Homewood, Ill., 1959.

The American Academy of Orthopaedic Surgeons Instructional Course Lectures. Volume XV: 1958. Editor: William A. Larmon, M.D. Cloth. $11. Pp. 308, with illustrations. J. W. Edwards, Ann Arbor, Mich., 1958.

Atomic Medicine. Edited by Charles F. Behrens, M.D., F.A.C.R., Roentgenologist, Yater Clinic, Washington, D. C. Third edition. Cloth. $15. Pp. 705, with illustrations. Williams & Wilkins Company, 428 E. Preston St., Baltimore 2, 1959.

Documenti sanitari: Bolli e suggelli di disinfezione nel passato, Trieste 1958. Di Carlo Ravasini. Cloth. Pp. 446, with illustrations. Edizioni Minerva medica, Corso Bramante 83, Turin 314, Italy, 1958.

Etiologia e sistematica delle epatiti da virus. Di Alvise Berengo. Paper. 2500 lire. Pp. 234, with 10 illustrations. Edizioni "Omnia medica," Via S. Michele degli Scalzi N. 59, Pisa, Italy, 1957.

Mirage of Health: Utopias, Progress, and Biological Change. By René Dubos. World perspectives, volume 22. Planned and edited by Ruth Nanda Anshen. Cloth. $4. Pp. 236. Harper & Brothers, 49 E. 33rd St., New York 16, 1959.

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RADIOLOGIST — BOARD CERTIFIED; DIAGNOSIS and therapy; trained in a large eastern university center; desires association leading to partnership. Box 8010 I, % AMA.

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(Continued on page 298)

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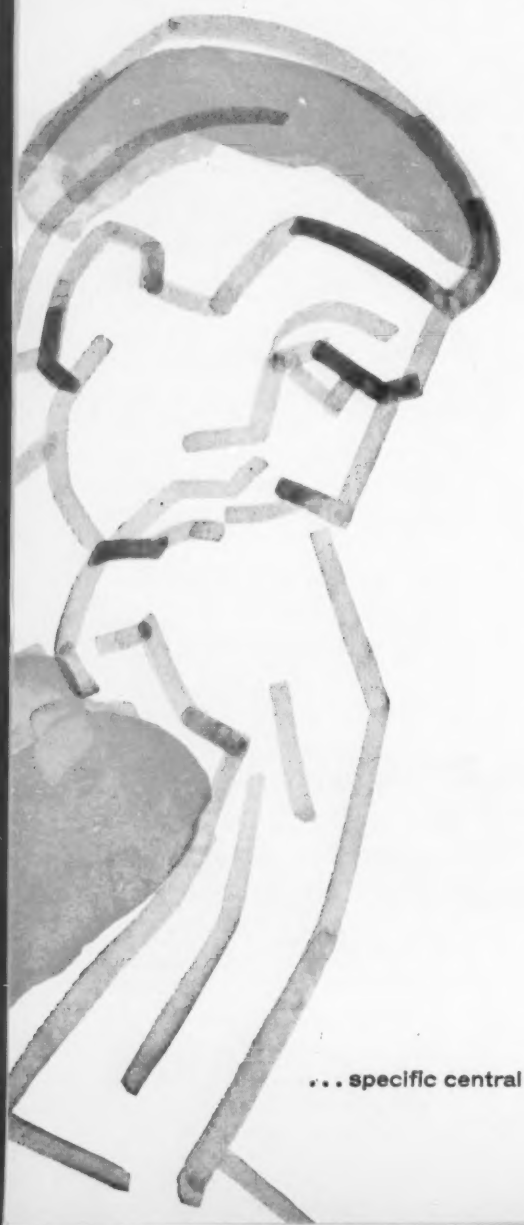

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1. Mitchell, E.H.: M. Ann. District of Columbia *27*:190 (April) 1958. 2. Cooper, C.D., and Epstein, J.H.: Am. J. M. Sc. *235*:448 (April) 1958. 3. Vazuka, F.A.: Neurology *8*:446 (June) 1958. 4. Cobey, M.C.: Am. Surgeon *24*:350 (April) 1958. 5, 6. Wein, A.B.: M. Ann. District of Columbia *27*:346 (July) 1958; Clin. Med. *6*:44 (Jan.) 1959.

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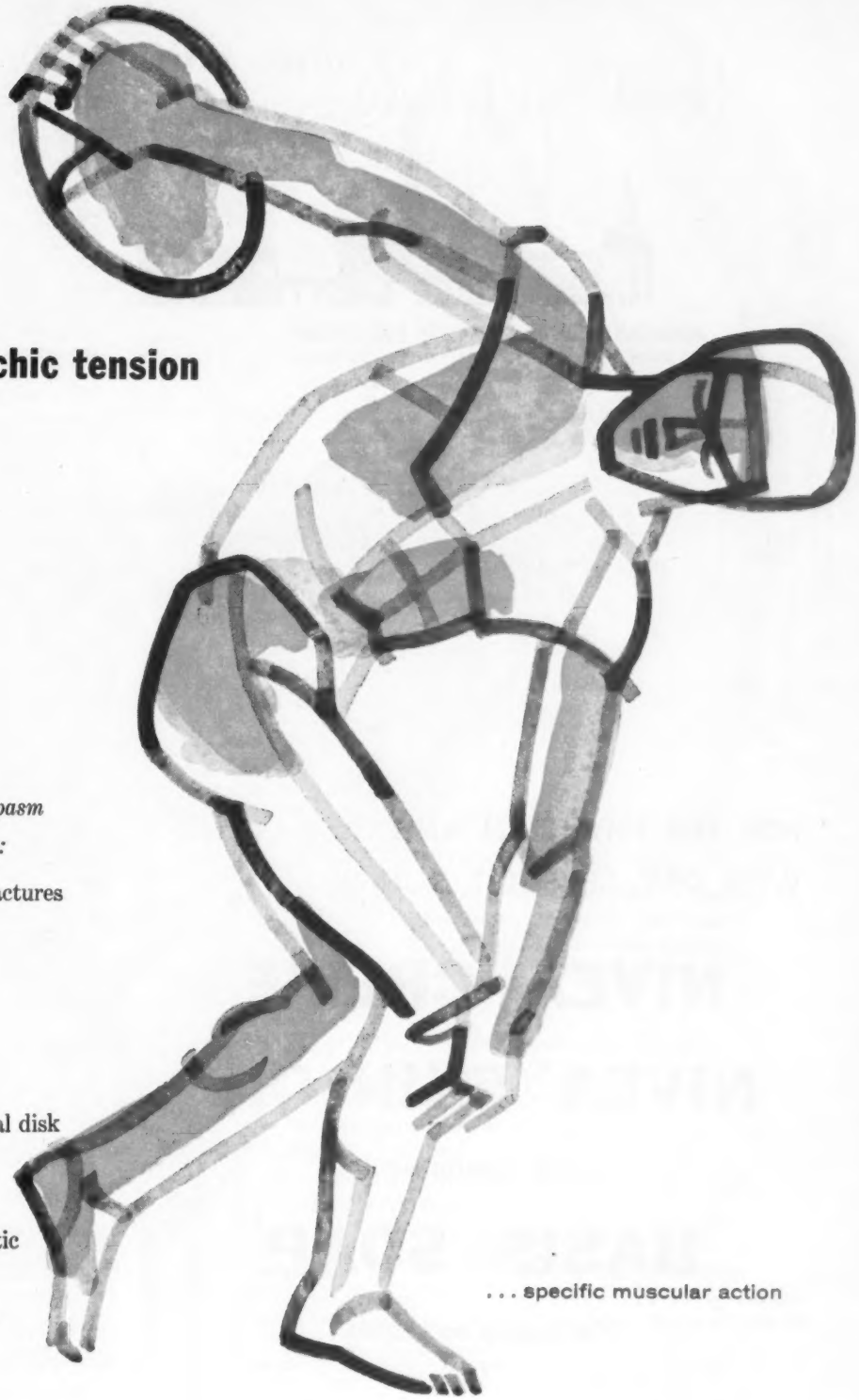

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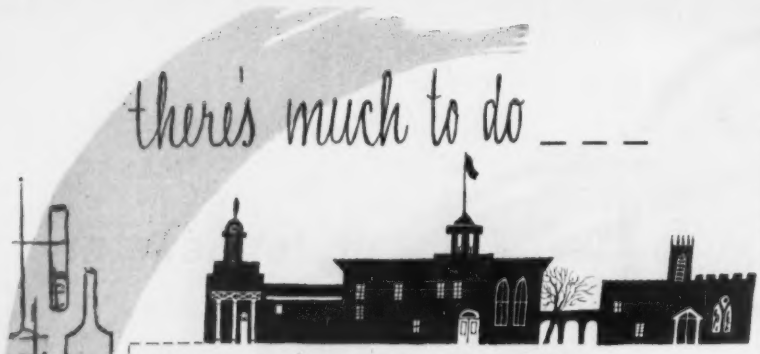

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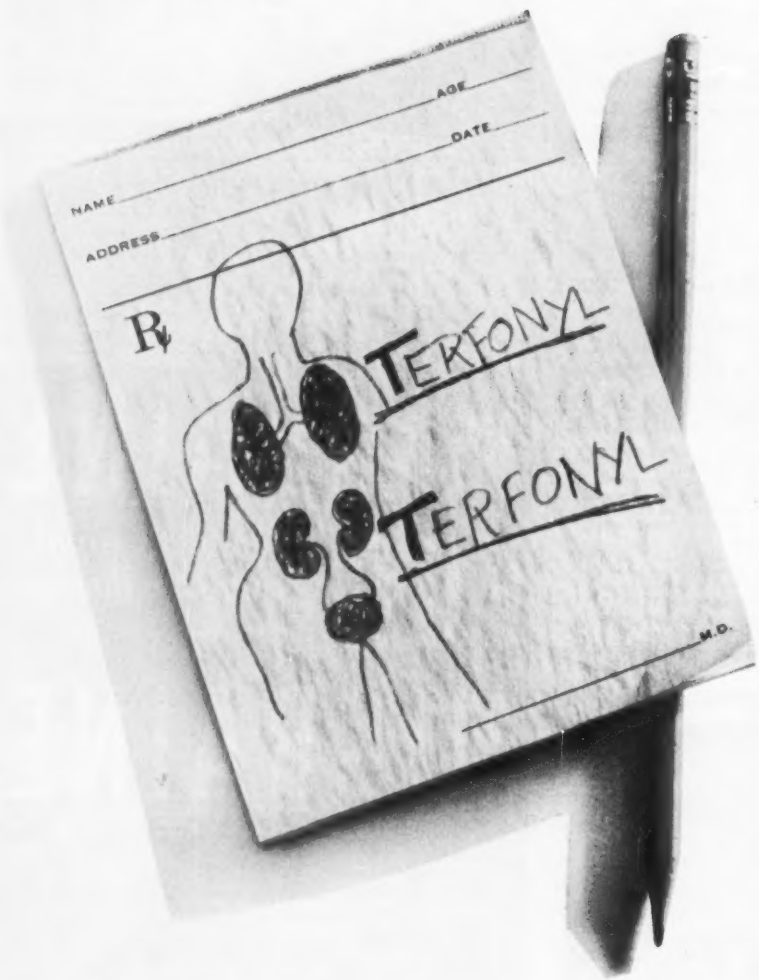

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1. Campbell, M. F.: Principles of Urology, Philadelphia, W. B. Saunders Company, 1957, p. 232. 2. Sophian, L. H.; Piper, D. L., and Schneller, G. H.: The Sulfapyrimidines, New York, A. Colish, 1952, pp. 70-76. 3. Lehr, D.: New York J. Med. 50:1361 (June 1) 1950.

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for dysmenorrhea

LUTREXIN has been used successfully in functional dysmenorrhea[1,2] for the past six years, as well as in selected cases of premature labor[3,4,5] and threatened and habitual abortion.[6,7]

LUTREXIN exerts an indirect, as well as a direct, relaxing action on the uterus by blocking the pituitary hormones.[8]

LUTREXIN administered orally decreases uterine contractions within thirty minutes.[1,9]

LUTREXIN is a naturally occurring, non-steroid, uterine relaxing hormone, biochemically different from other ovarian hormones.

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in vivo measurement of LUTREXIN on contracting uterine muscle

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